THE
MEDICAL NEWS AND ABSTRACT.

CLINICS.

Clinical Lectures.

ON CIRRHOSIS OF THE LIVER.

A CLINICAL LECTURE DELIVERED AT THE HOSPITAL OF THE GOOD
SAMARITAN, CINCINNATI.

By JAMES T. WHITTAKER, M.D.,

PROFESSOR OF THE THEORY AND PRACTICE OF MEDICINE, MEDICAL COLLEGE OF OHIO.

GENTLEMEN: We have, to-day, to discuss a disease without a parasite. We have had much to say hitherto about germs and parasites in connection with all cases of acute infectious disease. We have seen acute articular rheumatism, forms of Bright's disease, tuberculosis, and even that "type of acute inflammations," lobar pneumonia, fall into the line of the acute infections, so that now it would seem almost pertinent to ask: Is there any disease which is not due to the all-prevailing parasite?

Two centuries ago, it was scurvy which was the *fons et origo mali.* According to Eugalenus it was omnipresent. All children are born with it, Drawitz said; all diseases are complicated with it, said Mœllenbroeck or are produced by it, said Bonteroe. A century later, Hahnemann pronounced the psora, the itch, as the cause of every kind of chronic disease. Ours is the day of the parasite. I speak of it, however, in no spirit of levity. For the acquisitions of our day are not conceptions merely, not revelations of inspiration. They are discoveries of investigation, objective, and not subjective disclosures. Nevertheless, it is refreshing to have to study a disease with the pathogeny of which parasites or germs have nothing at all to do.

Our patient, as the history just read informs us, is a man of 42, a German by birth, and a brewer by occupation. He has been in the habit of drinking beer very freely every day, and not content with this, he has taken "schnapps" every morning besides. This has been his habit for years. About six months ago he began to feel dyspeptic. He had heartburn, pyrosis, occasional nausea, and gastric distress. He was constipated for the most part, but had now and then attacks of diarrhœa. For the relief of all these troubles, he always took "schnapps." Pretty soon he began to vomit, and now he vomits every day, just before breakfast, he

says. Bacchus, as well as Neptune and Venus (or Lucina), demand matutinal offerings. He has had hæmorrhoids several times, but they have never bled, and are now not present at all. He does not remember to have ever had any kind of dropsy. He has lost in his illness, he says, forty pounds of flesh. Let us look at him as he shows himself to-day.

He is a man of large, powerful frame, but he is evidently reduced in weight and strength. He seems listless and dejected. His skin has a sallow hue and is dry and scaly. The conjunctivæ are as yellow as in common jaundice. So far as we can see, there is nothing wrong in the brain, the lungs, or the heart. The fault lies below the diaphragm. The liver is evidently reduced in size. You catch the tympanitic sound of the distended colon well up under the ribs, where we should have hepatic dullness. I cannot feel the edge of the liver under the ribs even when following it up on forced expiration. At the same time the pulmonic resonance is clear down to and below the nipple. In other words, the liver is not pushed up from below, it is simply reduced in size. But the spleen is very large. It is palpable below the ribs, and percussion shows horizontal dulness from the sternum to the spinal column. To discover this anomaly, we have the patient lie upon his right side, with the left arm extended above his head. For the spleen enlarges sideways first, as much as it may, before it extends below the ribs. If you will remember this fact you may some day confirm in this way a suspicion of a walking case of typhoid fever, in which, as in all infectious diseases, the spleen becomes enlarged. The surface veins of the abdomen, which we should be barely able to see, make a visible network here. And now, as I have him stand, I catch by tapping upon the surface, sufficiently distinctly for recognition, the touch of a fluctuating fluid within. In this position the line of the fluid reaches up nearly half way to the umbilicus.

Clearly, we have before us a case of cirrhosis in the stage of commencing, or fully commenced, retraction. We have, therefore, to speak of this disease as illustrated in the case before us.

The liver is such a big and prominent organ, and was the supposed seat of so many functions, even sensations, as to have received much attention from the earliest times. The very gross lesions of advanced cirrhosis could not escape the keen observation of the old pathologists, or rather anatomists, for pathology, in our understanding of it, is a modern field, and so we find allusion to it by even the writers of antiquity. What especially attracted their attention was the change in its consistence. Thus, Aretæus speaks of the *hepar durum*, and *hepar scirrhus* was another appellation to indicate hepatic induration. Bianchi even spoke of the "*jecus in minimam molem retractum*," and Vesalius of a case, attended with the well known symptoms in life, where the liver, on autopsy, was found "*totum candidum et multis trabeculis asperum*," etc.

Morgagni reported from his own observation, and from that of others, undoubted cases of cirrhosis in which the liver was found after death "*totum granulosum*."

This was, however, the sum and substance of our knowledge of cirrhosis up to the time of Laennec (1819). The disease was not yet known as an affection distinct from others, from cancer, for instance, and nothing was known at all, as yet, either of amyloid or syphilitic change, or of the change produced by organic disease of the heart. So all these affections were confounded with cirrhosis.

Laennec came upon the disease quite accidentally in the course of his

examinations of disease of the lungs. He had under observation a fatal case of pleurisy with hemorrhage from the lungs, and he noticed at the autopsy the curious condition of the liver, which he describes in a few words. As this was the first recognition of the disease as a separate affection the description is worthy of mention. He found the liver, he says, " reduced to one-third of its volume, concealed in the place it occupies, and seemingly composed of a multitude of grains of millet seed of a yellow or yellowish-red colour." In a foot-note he adds : " This is a species of production which has been called scirrhus. I will designate it cirrhosis, because of its colour [χιῤῥός, tawny, or orange-colour]. Its development in the liver is one of the most common causes of ascites. The liver is always atrophied when it contains these cirrhoses." Laennec, therefore, regarded the " cirrhoses" as new formations, and, in accord with this view, Abercrombie described the yellow matter of cirrhosis as " in small nodules like peas dispersed through the substance of the liver." It is amusing, in the light we now possess of the nature of cirrhosis, to read in Abercrombie that the " French writers have a controversy whether the cirrhosis or yellow degeneration of the liver be a new formation, or a hypertrophia of the yellow substance which they suppose to constitute a part of the structure of the liver in its healthy state. No good can arise from such discussions," he näively adds, " as it is impossible to decide them."

But we must not spend too much time with the history of the disease. It will be sufficient now to say that in the same year of the recognition of this the common form of cirrhosis (Laennec's cirrhosis, the French still call it), Bouillaud showed that the nodular or granular appearance was due to atrophy of the red substance of the liver, whence resulted a more salient projection of the yellow substance. Kiernan (1836) first clearly pointed out the hyperplasia of the interstitial connective tissue which we now know to be the lesion of cirrhosis, and Gubler (1853) first called attention to the fact that the first stage of the disease is characterized by hypertrophy, the second by atrophy of the liver. Finally, Klebs (1868) first proclaimed phlebitis and periphlebitis of the radicles of the portal vein as the initial anatomical factor in the pathology of the disease. It is not the granules, therefore, which constitute the disease. The granules represent constrictions of the liver substance. The constricting agents, the connective tissue, constitute the disease, which is properly designated, as Bamberger has shown, " chronic interstitial hepatitis."

Almost from the very first recognition of the disease the cause of it was known. By all writers and clinicians cirrhosis is looked upon as an expression of chronic alcoholism. " Gin-drinker's" liver is its common name in England, and the extent of the use of alcohol determines the geography of the disease. Males are its most frequent victims, because, as Hyrtl has remarked, " drinking is one of the manly accomplishments." But typical cases are encountered among females, under the same conditions. Even the apparent exceptions, Niemeyer says, support the rule. " Thus Wunderlich found typical cases of the disease in two sisters, aged eleven and twelve years ; but, on careful inquiry, it was found that both of them were great schnapps-drinkers."

The liver has singular affinity, so to speak, for alcohol in any form. Percy found that he could recover alcohol in the bodies of dogs poisoned with it, from the blood, the brain, and other organs, but in greatest quantity from the liver. The researches of Perrin, Lallemand, and Duroy have shown that if we represent by 1 the quantity of alcohol found in the

blood, after the ingestion of a certain amount of it, that found in the brain will be represented by 1.34, and that in the liver by 1.38. This accumulation of alcohol in the liver, taken in connection with the sluggishness of the circulation in the liver, the hepatic radicles being the second set of capillaries, furnish sufficient explanation of the selection of the liver as the organ which shall suffer most from the toxic effects of alcohol. Inasmuch, however, as all drinkers do not suffer alike, we must invoke, in addition to the alcoholism, some special susceptibility which renders the individual liable to the disease. In this respect cirrhosis does not differ from nearly all affections. The continuous reception and escape of alcohol in the organs of secretion finally induce in them, at first irritative, and then inflammatory change. First in order is chronic catarrh of the digestive tract, then degenerations of the glandular organs, atheroma of the vessels, pachymeningitis, forms of Bright's disease, and, what concerns us now, cirrhosis of the liver. Thus, epithelial cells and lining cells of vessels perish under long-continued application of alcohol, but the connective tissues, before they perish, are stimulated, under irritation, to excessive growth. Like rank weeds, under fertilization, the connective tissue swells and spreads exuberantly. Alcohol reaches the liver through the radicles of the portal vein. These radicles, at their ultimate termination, are among the finest and thinnest, as well as among the richest systems of vessels in the body. The unoxydized alcohol, that is that which is in excess of consumption, passes by easy osmosis through their delicate walls and bathes the equally delicate fibres and threads of connective tissue which form the soft skeleton work of the recesses of the liver. The nuclei multiply, the threads become cords and bands, the whole liver swells. This is the first or hypertrophic stage of cirrhosis of the liver. When the connective tissue has attained its full maturity, it begins to shrink. The connective tissue in the liver contracts just as scar tissue shrinks everywhere else—on the face, for instance, and the deformity of the liver that results is just as great. For the liver is so shrunken up by the retractile threads of connective tissue as to look, both upon its free surface, and upon the surface of section everywhere, like the bottom of an iron-founder's shoe. "Hob-nail liver," it is sometimes called, and the hobs or nodules may be sometimes felt in thin people, or after tapping, even beneath the skin. It is not unfrequent to find the whole of the left lobe shrivelled to a mere appendage to the right.

Wickham Legg maintains that the primal factor in cirrhosis is constriction of the bile-ducts. He has shown, he claims, that obliteration of the ducts always leads to an overgrowth of the connective tissue in the liver in children, and that a no less marked cirrhosis ensues upon ligature of the ducts in the lower animals. Now it would be a very simple sequence to ascribe cirrhosis first to a catarrh of the duodenum which would so thicken the orifice of the common bile-duct as to interfere with excretion, and thus induce as secondary factors retention of bile, and, in consequence of its irritation, cirrhosis of the liver. The sequence is so simple as to be seductive. But the facts as they occur speak against it. For, in the first place, true jaundice is rare in cirrhosis, and it should be most pronounced in cases of occlusion, and, in the second place, the same cirrhotic change, that is, the same proliferation of connective tissue, attends chronic alcoholism in organs when there is no bile, as in the kidneys and the brain. The real sequence of pathogeny and pathology is this : alcoholism, periphlebitic hyperplasia, cirrhosis in the second stage.

The symptoms of cirrhosis irradiate from the liver as the central point. Most of them are easy of explanation on mere mechanical grounds. A few of the last and worst of them call out a knowledge of the physiology of the liver.

We never know just when the cirrhotic process begins in the liver, for the first symptoms are purely gastric. Gastric catarrh with its well-known attendants precedes the more pronounced and peculiar phenomena of the disease, for months, or even years. Our patient describes, in the course of his own case, the vanguard of the symptoms of the disease. Gastric distress, nausea, and vomiting, especially in the morning, heartburn, constipation alternating with diarrhœa; this is the train of symptoms that march in the front, or by the side of cirrhosis of the liver, for months and years, at times, before the symptoms of more complete obstruction arrive. Gradually, however, the hyperplasia of the connective tissue advances, or gradually it tightens up in its contraction upon the intervening liver-cells and vessels and ducts. The skin grows sallow and dry, the conjunctivæ are yellow from the start, emaciation sets in, all from lack of formation, or from slight reabsorption of blocked-up bile, then water is forced out of the radicles of the portal vein into the abdominal cavity, and from these distended vessels blood may escape into the stomach or intestine. Collateral circulation may, to some extent, compensate for the occlusion of the portal vein, and thus obviate for a time the worst phases of the mechanical hindrance. In fact, it is the establishment of collateral circulation that chiefly protracts the life of the individual affected with the disease. It is a matter of real surprise how many avenues of collateral circulation are brought into play in atrophy of the liver. There are vessels in the gastro-hepatic omentum from the lesser curvature of the stomach and connective tissue between the folds of the omentum, there are 12 to 15 small vessels which pass from the gall-bladder; besides these, the vasa vasorum, the vessels which run along the walls of the portal vein, hepatic artery, and bile-ducts; a fourth group descend from the diaphragm in the suspensory ligament; a fifth, the largest of all, the vessels which form the visible network on the surface of the abdomen, communicating with the epigastric and internal mammary veins; a sixth, the vessels which ramify upon the œsophagus and empty into the diaphragmatic veins. Fatal hemorrhage has been reported by Audibert, and Fauvel, from œsophageal varices formed in this way. Rokitansky first called attention to the circle of tortuous and distended vessels about the umbilicus, representing the so-called "caput Medusæ," not present in our case, and present in cases of cirrhosis, rather as an exception than a rule. After much discussion concerning these vessels, I believe the appearance is now admitted to be due to the reopened umbilical vein (Bamberger, Baumgartner, and Klebs). These various avenues of collateral circulation may become enlarged to such a degree as to relieve the pressure in the portal vein, and thus allow to disappear the ascites already formed, or, if preternaturally of large size, to prevent its appearance altogether. It is only in this way that we may account for the fact that a certain percentage of cases, according to Frerichs, one-third of the whole number, show no ascites at all.

Digestive disturbance, partly the direct effect of alcohol, partly the effect of arrest of the hepatic function, emaciation, and corresponding reduction of strength from the same cause, ascites, enlargement of the spleen, hemorrhoids, and hemorrhages from mechanical occlusions, enlargement, and subsequent contraction of the liver itself; these are the chief and promi-

nent symptoms of the disease. It remains now to take a cursory glance at the symptoms of secondary import.

Jaundice is seldom marked. Some slight discoloration of the skin belongs to every case, but genuine icterus betokens rather an accidental complication (gall-stone, compression by a band of hyperplastic tissue, catarrh of the bile-ducts, etc.). Icterus is exceptional in cirrhosis for the simple reason that the destruction of the liver-cells prevents the formation of bile.

General dropsy or œdema of the lower extremities does not belong to the symptomatology of cirrhosis. A great accumulation of ascites may compress the vena cava, or a profound debility, the general result of the suppression or annihilation of the function of the liver, may cause general dropsy, but these factors are not peculiar to cirrhosis. So accumulations of fluid in the abdomen, or the heavy weight of the liver may interfere with the action of the diaphragm, and thus induce dyspnœa; but symptoms on the part of the respiratory system do not constitute an integral part of the history of the disease.

The brain is clear in cirrhosis throughout the course of the disease, but towards its close, when the atrophy of the liver-cells has become more or less complete, there supervene, at times, grave symptoms on the part of the nervous system, delirium, convulsions, or coma, which indicate the toxic effects of elements that should be excreted with the bile. Pain or even tenderness is quite exceptional, and is due, when present, to peri-hepatitis. The shoulder-tip pain, which may be present in cirrhosis, as well as in every other organic disease of the liver, is satisfactorily explained by the anatomical demonstration by Luschka of the anastomosis of the phrenic and fourth cervical nerves.

The urine in cirrhosis furnishes most valuable evidence. It is scanty, dark, and turbid, loaded with urates and other products of combustion, the result of the wide-spread havoc in nutrition. A clear and limpid urine would speak strongly against the existence of the cirrhotic process. It is now well known that the liver is the chief organ in the body in the manufacture of urea, but it is not necessary to appeal to this fact, when the waste is so universal, to account, in cirrhosis, for the accumulation of the urates (undecomposed urea) in the urine.

Lépine has lately called attention to the glycogenic function of the liver in connection with cirrhosis. The liver makes and uses up sugar in greater abundance than any other organ in the body. Lépine found that sugar appeared in the urine of cirrhotic patients who had been fed with it, a result that might have been inferred from the destruction of the liver cells. In cancer this is not the case, because cancer is mostly localized in the liver, and does not cause such universal abolition of function.

We may not fix the duration of cirrhosis: first, because we never know exactly when it commences; secondly, because the course of the disease may be interrupted fatally (by a hemorrhage, or as the result of pressure of ascites upon the heart and lungs, etc.), or conservatively, by arrest of the process in the first stage, or in the beginning of the second. While it is safe to say that the prognosis is bad, it is dangerous to proclaim that the patient must die soon, or must die at all of the disease. Cases are now abundantly on record, and they may be recalled in the experience of every clinician, where the disease process has been brought to a stand, and the patient has survived for years to smile upon his physician for the rest of his days.

The *indicatio causalis* in the treatment of cirrhosis is total abstention from alcohol. The time may come when the patient will need some support, and when the light Rhine wines, or even a little beer, may be allowed; but any stronger drink must stand absolutely under ban. The diet should be light and nutritious, on a basis of milk and other animal food. A few drops of Fowler's solution, after meals, will help its digestion, absorption, and more especially assimilation.

As for drugs, in general, they may meet the symptoms only. With any knowledge of the anatomy of the disease who would expect to cure it? A stomachic tonic, nux vomica, a dilute mineral acid, hydrochloric, may be written *ut aliquid faciat.*

The only remedial agent that merits the name is puncture of the abdominal wall, and release from the abdominal dropsy. Early and frequent puncture is the result of the testimony of those who have had most to do with cirrhosis. Murchison, especially, is emphatic in its praise. To wait until life is endangered on the part of the heart, and lungs, and kidneys, is to let slip the only chance of arresting the disease. The release of the dropsy sets all the absorbents free. The peritoneum cannot pick up fluids under great pressure. Moreover—and this is the main advantage—the relief of the pressure renders possible the establishment of the collateral circulation, a process to be favoured in every way. The removal of the cause of the disease by abstention from alcohol, and the removal of its worst effect by relief of the dropsy, gives the patient the full benefit of the knowledge we get from pathogeny and pathology. Purgatives, like the salines, diaphoretics like jaborandi, diuretics like digitalis, tonics like iron, may all meet indications at times in the earlier history of the disease, but paracentesis will substitute all of them when ascites is fully declared. Not only are the lungs relieved in this way, Murchison says, but by the removal of pressure from the portal and renal veins the secretion of urine is increased. " I have known hemorrhage from the bowels," he continues, " arrested by paracentesis in cirrhosis, and it is a common observation that patients with much ascites, who, notwithstanding the most powerful diuretics, have been passing only a small quantity of urine containing much albumen, will, after paracentesis, and independently of drugs, void large quantities of urine free from albumen." The same author quotes the experience of Dr. Lyons, of Dublin, in a case which he tapped thirty-six times, at intervals of three or four weeks, withdrawing 14 to 16 quarts on each occasion, with the effect of bringing the disease to a stand at the end of one year after the last operation.

Thus, you may hope to hold the disease in check so far as the mechanical evils are concerned. Unfortunately, over the physiological evils, if we may use such an expression, we have less control. The body must have bile. A successful biliary fistula which carries off all the bile, inevitably leads to the death of the animal by inanition. Should the interstitial process continue, which it does in the rule, the liver cells are finally killed, bile is no longer formed, and death by starvation results. This is the mode of death in most cases of cirrhosis, and death in this way is *lege artis*. But the liver is immense in its size. It has superfluous cells in abundance, and the disease process may be arrested before destruction becomes universal. The patient may not be restored to the state of health, but he may live in comfort for years.

In ancient days, when parchments were scarce, old manuscripts were effaced from them at times, and new writing was put upon the page. It

was never so clean and legible as the original sheet, but still it could be preserved and deciphered with care. Such a parchment was called a palimpsest. With more care and study, a practised eye could read, through the new writing, the old, original draft. The liver is a palimpsest at best, for the rest of his day's, in a patient in whom has been arrested, but never entirely effaced, the inscription of cirrhosis. I put this statement to you in this way, to impress it upon you that you must not condemn to death a patient with cirrhosis.

SOME EFFECTS OF LONG-CONTINUED LACTATION UPON THE OVARIES AND UTERUS.

BY W. JAPP SINCLAIR, M.A., M.D.,

Hon. Physician to the Manchester Southern Hospital for Women and Children.

GENTLEMEN: During the whole period of pregnancy the breasts are undergoing a gradual process of evolution to prepare them for the performance of their function. Immediately after the completion of parturition there is a sudden acceleration in the progress of evolution, and it is completed within a period varying from a few hours to two or three days. The rapid engorgement of the breasts which is observed in this last stage of evolution may be unaccompanied by any discomfort, but, on the other hand, it often is accompanied by considerable constitutional disturbance, and the local condition may vary through all the degrees of hyperæmia to inflammation, ending perhaps in abscess, and partial destruction of the gland. Stimulation of the breasts at this time has a powerful effect on the contraction of the uterus; and this is only an exaggerated expression of a constant relation between the breasts and the central sexual organs. These are of course well-known facts, and they are mentioned here merely to compare them with the details of what is to a large extent the reverse process, which we are to consider more closely.

As the function of lactation becomes established, the uterus and ovaries undergo a rapid process of involution. This process, as far as the uterus is concerned, can be observed and exactly measured, and is not disputed. The involution of the ovaries also bears some relation to the evolution of the breasts. Menstruation is wholly or partially suspended because ovulation is less active during lactation, and hence impregnation is less likely to take place. This fact is well recognized and acted on by women themselves, but it has received little attention from gynæcologists, probably owing to the tendency to set down a popular belief as a popular error. For example, Mr. Lawson Tait, in his "Diseases of Women," says: "Amongst the working-class of our large towns there is a widely prevalent belief, for which I must say I have discovered no good foundation, that prolonged suckling hinders the mother from becoming pregnant." A well-known law of biology makes a presumption in favour of the popular belief in this instance; and, moreover, a careful inquiry as to the relation in time between weaning and succeeding pregnancy over a large number of cases, taken along with other well-known facts must convince most of the overwhelming proof by which the law of alternate evolution of ovaries and breasts is established.

According to this law, though the apparent exceptions are numerous, a woman does not menstruate perfectly, nor become pregnant, during the time of suckling; and on the gradual cessation of lactation, the re-evolution of the sexual organs becomes gradually complete. This completion can be inferred only from the

establishment of normal menstruation and the absence of abnormal phenomena. But when lactation has been carried to excess, we may expect that it has exercised a greater than average influence upon the sexual organs; and when lactation is suddenly stopped, it is reasonable to expect that the final stage of the evolution of the sexual organs will be more rapid than usual, and accompanied by some unusual phenomena. Opportunities of observing whether such phenomena do actually occur are plentiful enough. It is quite a common thing in this part of the country for women to suckle child after child for eighteen months or two years, and to wean them in a day or two. We have occasionally also the opportunity of observing what takes place on the death of a child from acute disease or accident after prolonged suckling. Now, I think we shall find in those cases evidence of a sudden revulsion towards the nutrition of the sexual organs analogous to the final stage of the evolution of the breasts after parturition. The ovaries and uterus became engorged, giving rise to pain and discharges, which may call for medical treatment.

In inquiring into this subject I have not been able to obtain much light from the major prophets of gynæcology. The action and reaction of the breasts and sexual organs, and the consequent influence of lactation as a cause of disease of the latter, appear to have received very little attention, or at least mention. That is, of course, a presumption that the subject does not deserve it. I have looked through Emmet's recent work, and have failed to find a reference to the subject. Thomas, who is usually so full on the causes of disease, merely mentions lactation as a predisposing cause of "chronic cervical endometritis," but why and in what way it acts he does not hint. Martineau, of Paris, in his book on the "Diseases of the Uterus and its Appendages," devotes a chapter to the causes of disease, and as he condescends to mention *Saphisme*, which, it appears, is a lewd habit, practised by some women of the time of Sappho in ancient Greece, and revived in modern Paris, he may be supposed to be exhaustive in his enumeration; yet he makes no mention of excessive lactation. The only explicit reference I find to the subject is in one of the works of Marion Sims. He says: "I know very well we may have menorrhagia from mere debility, from super-lactation, and from some temporary engorgement of the portal circulation, but such cases are not very common, and not usually obstinate." I believe, on the contrary, that menorrhagia from super-lactation, and the other effects arising from the same cause, form a subject too interesting physiologically, and too important in practice, to be dismissed in this summary fashion; and this view I hope to be able to establish by means of the cases which I am to bring under your notice. It is necessary, for the sake of brevity, that I should select from a considerable number of cases, some of which were meant to illustrate various details, only the most striking, and mention merely the relevant circumstances in these.

Case 1.—H. M., aged thirty-six years. Married twelve years; five children, no miscarriage. Husband, labourer. Seen first, April 8, 1879. Symptoms of anæmia lactantium. Weaned child less than three months ago; had suckled him twenty-four months. Menstruation did not return till after weaning; now too frequent, recurring every two weeks, lasting four days, very profuse. Medicinal treatment first adopted, ferri et quin. citr. and pil. rhei co. Next interval lasted three weeks; then menstrual period of five days.

History of Suckling.

First child born 13 months after marriage; suckled 18 months.

Second "	"	2½ years after first child	"	18	"
Third "	"	2½ "	" second "	"	18	"
Fourth "	"	2¼ "	" third "	"	18	"
Fifth "	"	2¼ "	" fourth "	"	24	"

Mother never pregnant before weaning. Menstruated once, at least, in the interval; on one or two occasions she menstruated twice before becoming pregnant. This patient was last seen on May 27, when she thought herself quite well again. On January 27, of this year, she applied for a midwifery card, and expected to be confined in February.

This is a fairly typical case of the sequence of suckling, weaning, menstruation, and conception. After the extremely prolonged suckling of the fifth child, menorrhagia follows. The mere exhaustion and anæmia, however well marked, do not account for the symptoms. We have more extreme cases in which no such effects follow when the women are well cared for and manage weaning in a rational way. The following is a good illustration of what a woman may go through without any definite local ailment ensuing.

Case 2.—H. L., aged forty-two years. Married twenty-one years; ten children, no miscarriage. Patient looks robust at first sight, but presents ordinary symptoms of anæmia lactantium. Suckling a child aged thirteen months; has not begun to menstruate.

History of Suckling, etc.

First child born March 21, 1859 : suckled 12 months.

Second "	"	Feb.	8, 1861	"	14	"
Third "	"	Oct.	9, 1863	"	7	"
Fourth "	"	July	5, 1865	"	15	"
Fifth "	"	Oct.	15, 1867	"	12	"
Sixth "	"	Sept.	30, 1869	"	15	"
Seventh "	"	Dec.	10, 1871	"	13	"
Eighth "	"	Nov.	14, 1873	"	10	"
Ninth "	"	June	30, 1875	"	14	"
Tenth "	"	Sept.	2, 1877	"	13	"

Advised to wean child gradually, which was done. An examination of these details will show that the conception never took place until after weaning, and that the interval between weaning and conception varied in duration from one to three months. This patient had a large, heavy uterus, but there was no tendency to prolapse and no history of menorrhagia.

The next case goes to the other extreme : the symptoms appear to have arisen as the immediate result of rapid weaning after the long-continued suckling of the third child.

Case 3.—A. T., aged twenty-four years. Married seven years; three children, no miscarriage. When first seen, complaining of pain in right ovary and constant discharge of blood for about six weeks. Patient suckled the last child a year and nine months, and had not menstruated during that time. Weaned the child in two nights; a week later, began to have pain in the right ovary, and in another week the discharge appeared, and has not ceased since. No history pointing to miscarriage. On examination, the uterus not found enlarged, except a fulness in right half, which is more tender to touch than the other side, and on pressure upwards on right side towards ovary the pain felt there is intensified. No enlargement of the ovary made out. Treated for ovarian menorrhagia and slight cellulitis. History of previous lactation not obtained.

The next two cases are illustrative of what may occur after the death of the child (from acute disease) when lactation has been carried on a considerable time.

Case 4.—E. B., aged forty-one years. Married nineteen years; fifteen children born alive, and three miscarriages. Husband, labourer. Seen first, December 9, 1879. Condition of patient indicates great exhaustion; nervous symptoms indicating anæmia of brain. Has suckled all her children, but some of them for only one, two, or three months. Obscure history of previous floodings after

weaning. Last child born eleven months ago: lived seven months; took breast up to day before his death. Patient began to menstruate three days after the child's death, and continued for a fortnight. Since then the hemorrhage has not stopped for more than four days at a time. This patient improved under purely medical treatment, but did not remain long under observation.

Case 5.—L. S., aged forty-three years. Married twenty-three years, fifteen children, four miscarriages. Husband a labourer. When first seen, patient complained of a feeling of weakness about womb, as if it would fall down; profuse leucorrhœa; incontinence of urine under any strain, such as coughing; feeling very weak, and could not walk any considerable distance without bursting into perspiration and feeling as if she would fall down; palpitation, giddiness, rapid loss of vision and of memory since last confinement.

History of Suckling, etc.

First child born 18 months after marriage; suckled   16 months.
Second   "   22   "   after first child   "   about 16   "

And so on—every child about twenty-two months after the previous one, and suckled about the same length of time. Patient was always pregnant again before weaning the child at the breast. One child, now aged four years, was suckled two years, the mother going through an attack of rheumatic fever of eleven weeks' duration in that period. The next child was born twenty months ago, and lived nine months. Was suckled up to the day of its death. Patient began to menstruate from four to six weeks after, yith severe pain and flooding, for which she was under treatment here. Says she has had two miscarriages since, but is not sure whether one of them was only very profuse menstruation.

In this case the treatment adopted was purely constitutional, and when patient was last seen (March 2, 1880) she was very much better. Had menstruated normally for two successive periods; the tendency to prolapse had entirely passed away, and the urgent symptoms of exhaustion had disappeared.

Case 6.—E. H., aged twenty-nine years. Married twelve years; six children, one miscarriage. Very anæmic. There has been much leucorrhœa for three years; menstruation is now too frequent, and the flow excessive, leaving her weak and nervous, with symptoms which from description appear to be a sort of *petit mal*. Weaned child, aged fourteen months, about two months ago, and has menstruated three times since—weaning done at once when menstruation appeared for the first time since confinement, and that period lasted four days. Speaks of being "flooded away" since then. The next period after patient came under observation lasted six days, and was very profuse. On its cessation an examination was made, of which the following is the note: "Uterus normal to touch: by speculum, os surrounded by ring of highly coloured mucous lining which has tendency to bleed; outside this ring is one of a bluish colour, as if full of venous blood, like a minute varicosis, which keeps all the way round at an even distance from the bleeding ring, except at one point where there is an old fissure. Sound passes easily in normal direction, giving the impression of a cavity wider than normal; canal three-eighths of an inch too long." Patient had suckled all her six children. Three weeks after patient came under observation she menstruated for the fifth time since weaning—that is, in eleven weeks—and the flow continued a week. She was under treatment and observation for two and a half months, and the last note was that she was quite well. The only local treatment employed during the whole time was the introduction into the cervical canal of a bougie of acetate of lead and bismuth.

The next case shows similar phenomena occurring in a woman who had borne only two children.

Case 7.—S. C., aged twenty-five years. Married seven years; two children, no miscarriage.

History of Suckling, etc.

First child born 2 years 9 months after marriage; suckled 16 months.
Second   "   2 " 10 "   after first child   "   17 "

After the birth of the first child patient menstruated regularly, never missing a period until she became pregnant again. After the birth of the second child she remained six months without menstruating, and was regular until after weaning the child when seventeen months old. She applied for advice about eight weeks after weaning. She complained then of pain in back and pelvis, with a sense of dragging and discomfort at the anus; had menstruated a fortnight after weaning, and again two weeks since; each time there was hypogastric pain before discharge appeared, and the period was longer and discharge more profuse than usual. On examination, uterus felt enlarged and rather low, tender to touch posteriorly; os patulous, with erosion round it. Sound passes easily normal distance. First notes taken on September 10. On the 19th patient began to menstruate again, and the flow continued very profuse till the 24th. Began again on the 29th. When patient was last seen, on November 7, menstruation had been normal since last date, but an aching continued about the right ovary.

Case 8.—This is a case in which there existed before weaning symptoms of exhaustion similar to those already described. It was to be expected that menorrhagia or some symptom of engorgement of the sexual organs would occur if weaning were delayed and conducted injudiciously. The patient was kept under constitutional treatment while the child was gradually weaned. E. F., aged twenty-nine years; married eleven years; six children, no miscarriage. Suckling child aged eight months; menstruated once last month.

History of Suckling, etc.

First child born February   1, 1868; suckled 12 months.
Second   "   January   15, 1870   "   12   "
Third   "   March   12, 1872   "   10   "
Fourth   "   March   17, 1874   "   12   "
Fifth   "   November 30, 1875   "   9   "
Sixth   "   January   4, 1878   "   9   "

The last child was weaned while the mother was under treatment. Patient seen occasionally for two months after weaning completed, and she was then quite well. This is a merely negative case, but, considering the rapidly recurring pregnancies and long-continued lactation—more than five years of the eleven years of married life—and the consequent anæmia and exhaustion, it is not without value to contrast with other cases.

Now, leaving menorrhagia and allied conditions, let us consider a case of a different sort.

Case 9.—F. C., aged twenty-eight years. Married eleven years; four children, two miscarriages. First seen May 20, 1879. Complaining of a bearing down for four months, and on examination the uterus was found completely prolapsed, with a large ulcer on the posterior surface of the cervix. Patient had been a washerwoman ever since her marriage, but never had any bearing down until the time stated. Was never delivered with forceps, but says she was "a good deal torn" in second labour six years ago. Perineum bears marks of having been ruptured to verge of anus.

Until the beginning of September attempts were made by pessaries and various applications to remedy the ailment, without success. It was then proposed, considering the patient's age, to operate in order to contract the vagina and improve the perineum. To this the patient consented, and was about to be admitted to

the hospital when an unexpected difficulty arose. She was suckling a child twenty-two months old. At the time the patient applied for advice the case was so evidently one of prolapse that no questions had been asked about lactation, and it must be confessed that the endeavours to find a sufficient mechanical treatment had taken away attention from the patient's condition in other respects. By this time several cases of the sort already described had received attention, and it seemed probable that in this case the atony due to long-continued lactation had something to do with the prolapse. Patient was advised to wean the child gradually, but she completed the process in less than a week. On September 16, a week after complete weaning, she reported that the womb had not come outside, and she felt better. On the 23d there was only a slight dragging, no prolapse. On October 1 she began to menstruate for the first time since her last pregnancy, and the womb had completely returned to its normal position. On October 28 she reported herself again menstruating normally, and feeling strong and well.

It should be observed in this case that prolapsus occurred for the first time when the patient had suckled her fourth child fifteen months. A sufficient explanation appears to be the following: Under favourable circumstances the involution of the ovaries and uterus had gone on to a greater extent than usual; super-involution of the uterus and atony of its supports gave a favourable condition for prolapse, and the patient's occupation accounts for the rest. The condition of the sexual organs in this case at the time of prolapse would be similar to what we find in women just past the change of life, in whom prolapse is so common. When the child was weaned, the force which was being wasted on the child was directed to the sexual organs, their nutrition received a rapid acceleration, and they soon recovered their normal condition.

Several cases of the same ailment in a much slighter form have come under observation since. One of them was that of a poorly nourished woman who was suckling her second child in the sixth month, and suffering from a dragging of the pelvic organs as if prolapse were beginning. Improvement followed weaning.

Now, considering the infinite variety of circumstances affecting the health of child-bearing women, and the consequent liability for the working of one physiological law to be obscured by other physiological and pathological conditions, it would be rash to state with confidence as proved any general proposition concerning the phenomena which I have described. But if the cases do not establish a proof, they afford a presumption of the truth of the following propositions:—

1. Lactation tends to prevent conception by its influence on the ovaries in retarding their return to the state in which ovulation is perfect.

2. After weaning, the evolution of the ovaries becomes more rapid than it is during any period of lactation.

3. After long-continued lactation, its sudden cessation is liable to be followed by a rapid evolution of the ovaries and uterus, giving rise to symptoms of ovarian and uterine hyperæmia.

4. Long-continued lactation may cause super-involution of the ovaries and uterus, resulting, under favourable circumstances, in complete or partial prolapse of the uterus.

If a *prima facie* case has been established for these views, the germ of truth can be developed, and the erroneous eliminated by further observation. Meantime, what appears to me to give value to the result so far obtained is that it affords some promise of a basis for the rational treatment of a considerable class of diseases of women which are not as yet treated upon any principle whatever. When the internal organs of generation are in a hyperæmic condition, whatever be the cause, one of the most ordinary phenomena is some sort of discharge. Now,

it is obviously irrational to try in any case to cure the condition giving rise to the discharge by the application of caustic substances to the most accessible part of the organs affected. But when the hyperæmia and consequent phenomena depend upon the revulsion after lactation, such applications to parts already functionally too active must do positive harm. It would be as rational to cauterize the engorged breasts the day after labour. When symptoms such as those described in the notes of cases are met with, it would be well to ascertain, as mere routine, whether they can have any relation to oversuckling. To establish such a relation is to ascertain the cause of the disease; the treatment, both constitutional and local, can then be carried out with a confidence and precision, and also with a success which does not ordinarily attend the efforts of the gynæcologist when dealing with these rather indefinite ailments.—*Med. Times and Gazette*, Sept. 4, 1880.

Hospital Notes.

Epithelioma of the Rectum removed after a new Plan without injuring the Sphincter Ani; Recovery.

I. C—, aged sixty-four, married, was admitted into St. George's Hospital, under the care of Mr. Rouse, in May last, with an epithelioma of the rectum of about six months' growth, situated on the left side of the bowel, about one inch above the anus. The growth was flat, sessile, of about the area of half a crown, and limited to the mucous membrane and the submucous tissue. The deeper parts felt apparently uninvolved.

On June 17th Mr. Rouse removed the growth in the following manner. A curved incision, an inch and a half in length, was made, just outside to the external sphincter, and parallel to the outline of that muscle. The skin was then dissected up outwards for a short distance, so that the outer circular fibres of the sphincter were exposed. The muscle was then drawn over towards the middle line. By introducing the finger into the rectum, the growth was pressed into the external wound, and it was then cut out, together with that part of the wall of the rectum to which it was attached. In this way an opening, about the size of a half-crown, was made through the bowel. After the closure of the skin wound but a small cavity could be felt, corresponding to the former situation of the growth. The hemorrhage was very slight.

Opium was given in order to keep the bowels confined for some days. The recovery was almost uninterrupted. For some few days slight feculent discharge took place from the wound, but after about three weeks this had completely ceased, and the patient then had entire control over the contents of the rectum. As a matter of fact, scarcely any feces escaped, but the suppuration resulting during the granulation and closure of the cavity possessed a fecal odour. When the patient left the hospital, about a month after the operation, the power of the sphincter was perfectly normal. The general symptoms were much relieved.

Remarks.—The advantages of this method of operating, in suitable cases, are obvious. In the instance described above, it is true, the growth was of small extent and limited to one side of the bowel. There seems no reason, however, why this operation should not be equally applicable to growths of much larger size. The advantage of preserving the sphincter intact is patent; no doubt, in some cases an operation of this nature might advantageously be substituted for complete removal of the lower end of the rectum. Certainly, numerous cases have been recorded where no incontinence of feces followed the latter proceeding; but still this method of operation gives the patient additional security against a highly unpleasant condition, without any additional concomitant risk.—*Lancet*, Oct. 2. 1880.

MONTHLY ABSTRACT.

Anatomy and Physiology.

Regeneration of the Spinal Cord.

Although in some of the lower animals it has been shown that the spinal cord, after division, may reunite, all attempts to obtain this result in the case of dogs have hitherto failed. It is possible that this is to be ascribed to the age of the animals on which the experiments were performed. EICHORST, experimenting upon very young dogs, has succeeded in obtaining union of the cord and partial restoration of function, in a comparatively short space of time. Although successful in only one case, the particulars of the experiments are of much interest.

In three young dogs the spinal cord was divided between the lower part of the dorsal and upper part of the lumbar regions. Immediately after the operation there was, of course, complete motor and sensory paralysis of the parts supplied from the cord below the section, and vigorous reflex movements could be obtained. The wounds were treated on strict antiseptic principles, but thymol was employed instead of carbolic acid, on account of the action of the latter on the nerve-tissues. The first animal experimented on died in twenty-one days, without any return of voluntary power or of sensation in the paralyzed parts. The post-mortem examination showed that there had not been the slightest attempt at regeneration of the divided cord. The ends were three millimetres apart, and were united by a gray translucent gelatinous substance which was in intimate organic connection with each extremity. This intermediate tissue consisted of large round cells, containing nuclei which were deeply stained by carmine, and a finely granular interstitial tissue which could be resolved, by a high magnifying power, into clear granules and fibres. There were numerous capillary vessels, the proper wall and adventitial sheaths of which were permeated with elongated oval nuclei. Nowhere could any trace of nerve-elements be discovered. It was a cicatricial tissue closely analogous to that of the neuroglia. The nerves of the lower extremities presented no structural alteration.

In a second dog operated on in the same manner, a return of voluntary movements commenced at the end of the fourth week. The dog became able to stand, sit, and finally to run 180 feet without interruption, although its movements were distinctly ataxic. Sensibility, however, remained absent. The animal was killed on the thirty-fifth day. A grayish substance, somewhat flattened from before back, had restored the continuity of the cord. The part corresponding to the anterior and lateral columns already presented a medullary aspect. The nerves and muscles of the lower extremities were normal. Microscopical examination of the new tissue in the cord showed it to be permeated by tracts of nerve-fibres, running from above downwards, of which most possessed a medullary sheath. Many of the fibres presented nuclei which had the aspect of being pressed into the fibres from their surface. Non-medullated nerve-fibres were less abundant, and showed a tendency to a varicose condition. The two kinds had no regular distribution. The interstitial connective-tissue presented cellular elements, colouring deeply with carmine, and provided with processes. Besides these, there were two very large cells with double contoured nuclei and large processes, but whether nerve-cells or connective-tissue elements it was impossible to say.

In the third dog, although it lived for 131 days after the operation, there was no renewal of the motor or sensory functions, nor was there any restoration of the continuity of the cord. The extremities were two millimetres apart. In neither animal was there any secondary degeneration in the cord.—*Lancet*, Aug. 7, 1880.

The Cause of the First Cardiac Sound.

It can hardly be said that we are even yet in a position to satisfactorily account for the production of the first sound of the heart. The generally received explanation is that it is composed of two elements, a valvular and a muscular—although physiologists differ upon the exact share taken in its production by the contraction of the heart-muscle, and some even doubt its share at all. A paper was read at the meeting of the Paris Academy of Medicine on August 31st, by M. ROSOLINO, of Athens, in which (so far as we know) an entirely novel and not unreasonable explanation was broached. This observer maintains that the sole cause of the first sound is the vibration of the chordæ tendineæ in the systolic eddy of the blood-stream. He argues that if it were due to the flapping together of the valve-cusps, it should be produced mechanically by simple traction on the cusps by the cords; but experiments on the human and equine heart fail to bear this out. A simple membrane which from being lax is suddenly stretched produces a sound; but the valve-cusps exist under more complex conditions—since they are more or less fixed by the chordæ, which are inserted not only on their free margin, but also on their surface. The cusp is not therefore free to move in its whole extent, like an unattached membrane; and it is rendered tense by the general contraction of the papillary muscles. Nor is the first sound due to the passive closure of the valve by the blood-column. VALENTIN thought this might be the case, and endeavoured to prove it by showing that a similar sound was produced by suddenly distending with fluid a coil of collapsed intestine; but he could not have obtained it had he artificially enlarged the calibre of the intestine previously, and then stretched its walls. If the sound is abolished by hooking up the valve, it is because the procedure also destroys the meshwork of the chordæ tendineæ. Again, M. Rosolino has produced a similar sound by projecting a current of water over cords attached at both ends, and disposed like the chordæ tendineæ. He rejects the muscular hypothesis, not from his own research, but by the facts advanced by CHAUVEAU and FAIVRE. Nor is the theory of its production by the friction of the blood against the walls of the auriculo-ventricular orifice tenable, since in that case the bruit produced in aortic constriction, where this friction would be most developed, should partake of the characters of the first sound instead of a blowing character. The ventricular wall, tense and solid as it is, cannot vibrate like the chordæ, which from their tenacity, their tension, and their freedom from attachment except at the extremities, are in a condition to allow of true vibrations. As stated above, we are not aware that this explanation has been before offered. It is ingenious and worthy of consideration, but at the same time it must be obvious that in cases of simple regurgitation from dilatation of the cavity, the condition of the chordæ may be almost unaltered, and yet the first sound will be abolished, or rather replaced, by a murmur; and it is difficult to entirely throw over the view that the actual impact of the cusps, and their sudden tension during systole, is not a great element, if not the sole cause of the sound.—*Lancet*, Oct. 2, 1880.

Vaso-motor Action.

The influences which determine the condition of the bloodvessels, their dilatation or contraction, are of extreme importance. Current opinions of the nature

of these influences have largely dominated theories of both healthy and morbid action, and every new fact regarding them is of the greatest interest to both the physiologist and the pathologist. A series of investigations by Dr. W. H. GAS KELL, which have been carried on in the physiological laboratory at Cambridge, and lately described to the Royal Society, constitute an important addition to our knowledge, and furnished the subject of one of the most interesting demonstrations given at the recent meeting of the British Medical Association. Although their greatest interest is in relation to the peripheral vessels, the observations deal primarily with the states of the heart. Complex as the mechanism of cardiac action is, the apex of the frog's heart presents much more simple conditions, in that it is, so far as has been ascertained, destitute of nerves or nervecells. It thus presents a favourable object for the investigation of certain phenomena of vascular action. It has been hitherto believed that all inhibiting or dilating influences on both heart and vessels depend immediately on the nervous system. In accordance with this view, if the nerveless lower part of the ventricle of the frog is physiologically separated from the upper part by a ligature, it ceases to beat, even though, by a canula previously introduced, the frog's own blood is supplied to it. But Meronowicz has found that if an artificial blood solution is supplied to it, or it is stimulated by the constant current, this nerveless apex will recommence its rhythmical contractions ; and Foster has further ascertained that the same effect is produced when the heart is supplied with the frog's own blood, but the pressure of this is increased, as by clamping the aorta. Hence, if the stimulation afforded by a mere increase in the intracardiac pressure will induce rhythmical contractions in a nerveless heart, we must regard the view that the action of the muscular walls of the vascular system depends solely upon nervous influence as at least open to reconsideration.

It has been lately ascertained that a dilute alkaline solution will re-excite contractions in the isolated and quiescent apex. This effect was ascribed to the removal of some obstruction. But the suggestive fact has been ascertained by Gaskell (employing Roy's tenometer, by which variations in the size of the cavity are recorded) that the contractions so excited are presently arrested by the heart passing into a condition of tonic spasm. The relaxation between successive beats becomes less and less, and the heart apparently stops in systole. It is not a state of tetanus—i. e., of rapidly recurring contractions—but apparently one of "idio-muscular" contraction or tone. If a saline solution is passed through the heart, it will frequently remain without beating, and then sometimes the alkaline solution may be observed to cause a gradual tonic contraction without any rhythmical beats. It was next found that a dilute acid solution (of lactic acid) had an action precisely opposite to that of a dilute alkaline solution. The ventricle was quickly brought to a standstill in the position of complete relaxation. The effect of neither acid nor alkali is permanent ; in either case artificial blood solution is able, subsequently, to cause contraction differing in no way from the normal. The actions of the acid and alkaline solutions are not merely opposite, they are actually antagonistic. If, by means of an acid solution, the beats have been lowered in force, they are quickly restored to the normal by an alkaline solution, and vice versâ. Dr. Gaskell has further ascertained that certain poisons act on the heart as does the alkali, while others act as acids. The antiarin (the poison of the upas tree) and digitalin act as do alkalies, causing an increased tone, irrespective of contractions—a tone which ultimately renders contractions impossible. Muscarin, on the other hand, acts as the acid. Pilocarpin also acts like the acid, while atropin acts in the same manner as the askali.

Further investigations have brought out the important fact that alkaline and acid solutions act upon the muscles of the smaller arteries in the same way as

upon the cardiac muscle. The observations were made upon the mylo-hyoid muscle of the frog, after pithing, and division of the mylo-hyoid nerve, to eliminate all nervous influence. Solutions were sent through the vessels at a constant pressure, and provision made that the modification in the heart's action should have no effect on the pressure in the vessels. The lactic acid solution produced always an enlargement in the calibre of the arteries, and the flow through them was proportionately more rapid. The alkaline solution caused invariably a diminution in size, usually to absolute closure, with a corresponding obstruction to the flow through the vessels. Moreover, the same antagonism of the two solutions was found to exist for the vessels as for the heart. Although lactic acid was employed in these experiments, it was ascertained that the effect of acetic acid was exactly the same.

Hitherto, as we have said, the condition of the heart and smaller bloodvessels has been regarded as dependent solely on the influences exerted through the vaso-motor nervous system. These experiments show that local influences, the nature of the fluid surrounding the muscular fibres, also affect their condition. Their tonicity is augmented by the increased alkalinity of the fluid, is diminished by its lessened alkalinity. Functional activity is everywhere attended with vascular dilatation, by the mechanism, it has been hitherto assumed, of the vaso-motor nerves. But if the state of the muscular tissue of the vessels may be modified so largely by the fluid around them, may not the products of the activity of the organ determine, by local action, the dilatation of the vessels? Dr. Gaskell ingeniously argues that it is à priori probable that it may be so, from the structure of the vessels, the muscular fibres lying immediately outside the impermeable elastic lamina. It is in the highest degree probable that the lymph fluid of muscles is rendered less alkaline by the chemical products which result from muscular action. In the brain and pancreas the same conclusion is also probable from recent researches, and these facts suggest that it is true of all tissues. According to some investigations by Klug, oxygen strengthens, carbonic acid lowers, the cardiac pulsations, and alkalinity promotes oxidation. It is probable, then, that throughout the whole vascular system normal tone and rhythmical action are dependent in part upon the due oxygenation and alkalinity of the fluid supplied to its muscular tissues, while, on the other hand, the tonicity cannot be maintained or the rhythmical action continued, when that fluid is overcharged with such products of tissue metamorphosis as lactic and carbonic acid.

Besides its visible pulsations, the muscular tissue of the heart varies much in its condition of tone, as these observations demonstrate. If in the normal state the relaxation between the separate contractions is nearly complete, and the cavity closed for a definite time at each contraction, then with a greater tonicity the period of closure would be longer, the intermediate dilatation would be less complete. With less tone, the cavity would be closed for a shorter time, or incompletely closed at each contraction, and the diastolic relaxation greater. To the latter condition, long recognized theoretically in cardiac pathology, Beau many years ago gave the inexact term of "asystolie." When the ventricle of the frog is tied, atony is produced; the alkaline blood solution gradually improves its tonicity, as tracings show, until spontaneous pulsation result.

It is unnecessary to point out how immediate and important is the application of these facts to the physiology and pathology of the whole vascular system. It is clear that many phenomena now believed to be produced by the agency of the nervous system may be really independent of it. The vaso-motor nerves exert their influence, profound and extensive, but the tissue elements which they control have also a power of independent action. To determine the relative potency and place of the two modes of vaso-muscular influence, and the relation between

their excitants, must be the next steps in the solution of the problems opened up by these researches. The facts already ascertained are of the highest importance and suggestiveness, and, elicited as they are with great care and by a most difficult investigation, their discovery does the highest credit to English physiology.—*Lancet*, Sept. 18, 1880.

Materia Medica and Therapeutics.

Recent Researches on the Action of Drugs.

The problem of the antagonism of poisons, which seems destined, for a long time, to be a *quæstio vexata*, has been re-examined by Mr. J. N. LANGLEY, at Cambridge, in reference to certain statements of Rossbach. The latter affirms that when a tissue has been paralyzed by any one alkaloid it can neither be stimulated nor restored to its normal condition by any other alkaloid. In the submaxillary gland, for instance, if the chorda tympani nerve has been paralyzed by atropin, no amount of physostygmin or pilocarpin can, according to him, make it again irritable. He holds that in glands there are two parts to be considered, the nervous and the glandular part, that small doses of alkaloids affect only the nervous part, while large doses affect the glandular part in addition. After atropin has paralyzed the chorda tympani, pilocarpin may still affect the gland cells, but they cannot be affected by it if the dose of atropin was sufficiently large to affect the glandular cells also. Langley has ascertained certain facts which militate strongly against this view. If a small quantity of atropin be injected, the secretion, which is arrested, can be restored by pilocarpin. If a stronger dose of atropin is injected, the same dose of pilocarpin will no longer restore the secretion. Hence, according to Rossbach, this large dose of atropin has affected the gland cells as well as the nerve. But Langley finds that a still larger dose of pilocarpin will again restore the secretion. Thus, whether the larger dose of atropin acts on the cells or not, the pilocarpin must have been antagonistic to it.

Certain recent researches into the effect of large doses of strychnia have brought to light some most remarkable facts. In poisoning by this agent the convulsions and toxic action are remarkably lessened by artificial respiration. This was first shown by Rosenthal, who asserted that double the ordinarily fatal dose was necessary, under these circumstances, to cause death. Experiments which, in the main, confirm these statements have been made by Leube, Pauschinger, and Buchheim. M. RICHET, however, has recently informed the Académie des Sciences of the startling fact that when artificial respiration is maintained, a dose of strychnine 100 times that which is usually fatal may be administered without causing immediate death, and that the effects are altogether different from those which result from ordinary doses. The quantity of strychnia which is fatal to a dog of ordinary size is two or three milligrammes. If one centigramme is injected beneath the skin, or into the saphenous vein, of a dog, in the trachea of which a canula has been placed, the animal is seized in about a quarter of a minute with a violent convulsive attack, which would be fatal were it not for artificial respiration. Under the latter, however, the attack ceases in a few seconds, and the heart, after a period of irregular action, resumes its normal pulsations. Still larger doses of strychnine can be thus injected without causing the death of the animal. The toxic phenomena vary according to the dose injected. There is first a tetanic period, and later a convulsive stage characterized by violent, incessant, spasmodic contractions of nearly all the muscles. A little later, when the quantity of strychnine injected exceeds one centigramme per

kilogramme of body weight (say one decigramme, a grain and a half, for an average-sized dog), a stage occurs which may be termed choreic, marked by violent rhythmical shocks, recurring at intervals of three or four seconds, and separated by periods of almost complete resolution. When the dose exceeds four centigrammes per kilogramme of body weight (say half a gramme, or seven grains, to a medium-sized dog), the choreic shocks do not occur; there is a final stage of complete resolution, when reflex action is abolished, spontaneous respiratory movements have ceased, and the heart contracts with frequency but regularity. The pupil, dilated at the onset, becomes strongly contracted. Arterial blood pressure, raised at the commencement of the poisoning, gradually falls, and the rectal temperature varies correspondingly, rising during the convulsions to 105° or 106° F., to fall to 96° during the period of resolution. Dogs and rabbits, to which these large doses have been given, may be kept alive four or more hours by artificial respiration. If the latter is interrupted for a few seconds, say for half a minute, the heart stops, and the animal is dead. Loss of blood, even of a small quantity, will also cause death. In order to insure success in these experiments, the strychnine has to be injected with a certain slowness, an hour being given for the injection of half a gramme (seven grains). The artificial respiration must be vigorous, and success is more readily obtained with rabbits and small dogs than with larger dogs. If instead of these large doses, very small quantities are employed, say one milligramme per kilogramme of body weight, death occurs rapidly by syncope. The cardiac failure is not at first fatal, but after three or four attacks the animal dies. When the dose injected is fifty times as much these syncopal attacks do not occur, and it can then be ascertained that the pneumogastric has scarcely any action upon the heart. The muscles preserve their normal irritability. The action of the motor nerve is lessened, but is not abolished. Thus the complete absence of spontaneous movements is to be ascribed to the effect of the strychnia upon the spinal cord, rather than to the loss of the functions of the motor nerves, or of their terminations. The animal is in a condition analogous to that produced by chloral or alcohol. We cannot, from these experiments, derive much hope of dealing more successfully with strychnine-poisoning. As the poison is eliminated, and its dose thus lessened, its effect upon the heart increases, and death results from syncope. But in cases in which it is important to prolong life for a few hours, this might be effected by prompt tracheotomy and vigorous artificial respiration.

Bromide of ethyl has been found by M. RABUTEAU to be an efficient internal remedy, chiefly as a substitute for chloroform, over which, however, it does not appear to possess special advantages. Given by the stomach, it was found to relieve gastric pain, without affecting the appetite. Inhalations readily relieve convulsive cough, and, introduced on cotton-wool into the external meatus, it relieves the pain of otalgia without causing any irritation. Claude Bernard showed that the vapour of chloroform and of ordinary ether hinder the germination of seeds, and M. Rabuteau has found that it is equally true of bromide of ethyl and of bromide of amyl. He finds also that all the ethers have the same effect. The experiments were made with cress seed. But the property of germination is merely restrained. Seeds kept for thirty-seven days exposed to the vapour of bromide of ethyl or bromide of amyl, germinated, when placed under proper conditions, in two days. The question then presents itself, Have these substances a similar action upon plants which are in full progress of growth? Growing cress was exposed for two hours to an atmosphere saturated with vapour of bromide of ethyl; it then appeared feeble, the leaves hanging down, and it continued in this condition for a day or two, and then revived, but exhibited considerable retardation in its growth compared with other plants of the same

age. The leaves of heliotrope become brown, and die in the course of two hours. Acetate of ethyl is somewhat less powerful. Cress lives after it has been exposed to the vapour for three hours, but does not survive an exposure of six hours. Heliotropes are only killed by an exposure of three or four hours. The action of acetate of ethyl is also correspondingly less active in animals.

The effect of salicylic acid on muscular contractility has been studied by M. LIVON. Frogs poisoned by this substance present tetanic phenomena. Tracings obtained from the contracting muscles show that the salicylic acid causes an increase of excitability, followed by a considerable diminution and by an irregularity in the latent period. The tetanus which occurs may present two forms. One resembles closely that which results from electrical stimulation, and a second, altogether different, which presents a rhythmical character. In the latter the muscle is in the condition which has been termed "contracture," which continues until the muscle is exhausted, and will no longer respond to faradization of the sciatic nerve. This exhaustion is apparently not due to any effect of the drug upon the muscles; its action seems to be solely upon the nerve centres. The phenomena of the rhythmical tetanus lead M. Livon to believe that the rhythmical action of the heart is not due to any peculiarity in its muscular structure, but solely to its different mode of stimulation.

The inutility and even harmfulness of salicylate of soda in typhoid fever was well established, both in this country and in Germany, soon after the introduction of the drug. Objections to its use in this disease will not be lessened by a recommendation of it recently made by M. Hallopeau, since he had three deaths in twenty cases. M. Labbé has tried it in erysipelas and found it useless.

Sulphocyanide of potassium has been regarded as a "muscular poison," but this opinion is opposed by some experiments of Dr. J. V. LABORDE, the results of which have been described in a series of articles in the *Gazette Médicale de Paris*. He first ascertained that a relative tolerance could be established when the dose does not exceed a gramme; and then, by almost daily administration, he kept an animal under its influence for more than six months. The general health was but little disturbed until the end of the fourth month, when considerable emaciation occurred, and little food was taken. The condition of muscular contractility examined in the thigh or leg at different periods, never presented the least alteration appreciable by any ordinary means of investigation. The cardiac pulsations lessened notably in force and number in accordance with the depression of the nutritive functions. The animal appeared, however, to be in no danger of death, when it suddenly succumbed to a comparatively trivial operation, the intravenous injection of water. From this and many other experiments M. Laborde concludes that the muscular contractility is not primarily or directly affected by the sulphocyanide of potassium.

Euonymin is a drug which, although of some previous repute in America, was introduced to the profession in England mainly by Dr. Rutherford's investigation into its power as a cholagogue. It has been little employed in medicine, but a case in which pseudo-membranous colitis was treated by it successfully has been published by M. BLONDEAU. The case had resisted many courses of treatment, but disappeared in six days on five centigrammes of euonymin night and morning.—*Lancet*, Oct. 2, 1880.

———

Effects of Salicylic Acid on the Temperature.

Prof. DEPLATZ, of Lille, in a paper laid before the Académie de Médecine (*Bull. de l'Académie*, Sept. 7), arrives at these conclusions: 1. Salicylic acid, administered in sufficient doses to the subjects of fever, always has the effect of

temporarily reducing the temperature. 2. This temporary reduction may be maintained and increased by the administration of new doses, and by aid of this agent we are enabled to moderate at will the temperature of the sick. 3. Doses of the acid hitherto considered as poisonous may be exceeded without danger, patients being able to take for several days in succession eight, ten, or twelve grammes. 4. The rectum is the best channel for the introduction of the acid, and each enema should not contain more than two grammes. These conclusions are based on five cases of typhoid, one of variola, one of puerperal peritonitis, and several of phthisis. They are also supported by experiments on animals.—*Med. Times and Gazette*, Sept. 25, 1880.

Homatropin Hydrobromate as a Mydriatic.

Dr. HENRY S. SCHELL, Surgeon to Wills Hospital, has recently been making some observations upon homatropin hydrobromate as a mydriatic, from which the following conclusions appear to be justified :—

1. Homatropin hydrobromate is not well adapted to the treatment of inflammatory or traumatic affections of the eye, on account of the conjunctival irritation it produces.

2. It is especially adapted to the production of that temporary dilatation of the pupil and paralysis of the ciliary muscle which is so often required in examining the condition of the refraction.

3. The best solution to use is one containing sixteen grains to the fluidounce of distilled water. From one to five drops of such a solution may be required to produce the desired effect, according to the strength and activity of the ciliary muscle.

4. Under the influence of a full dose the pupil attains its maximum dilatation in about twenty minutes.

5. With a full dose the accommodation begins to fail in about twenty minutes, and is usually totally suppressed in a half hour, although exceptional cases may require an hour. This total suppression lasts about three hours; the accommodation then gradually recovers itself, and is fully in action again at the end of from ten to thirty hours from the time of the last instillation.

6. The local action of the mydriatic is not accompanied by any unpleasant effects upon the general system.—*Philadelphia Med. Times*, Oct. 9, 1880.

On the Application of Iodoform in Gynæcological Diseases.

Dr. MARTIN, of Berlin, communicates a paper to the *Centralblatt für Gynäkologie* (No. 14, 1880), in which he gives the results of a series of clinical experiments on the use of iodoform in various gynæcological affections. In the outset, he refers to the recommendations of iodoform made by Greenhalgh, De Marquay, and Völker, the former of whom was the first to recommend its employment in cancer of the cervix, whilst the latter praised its favourable effects in overcoming the pain and the distressing odour of the secretions in this disease. Next he mentions its employment by Kurtz as an absorbent in abdominal tumours. He then goes on to mention the paper of Kisch in No. 52 *Berlin. Klinisch-Wochenschrift*, in which he publishes the results of the local application of iodoform in over fifty gynæcological cases. Kisch had maintained that in these cases he had found iodoform an extremely active medicine, powerfully favouring the resorption of exudations, exerting a favourable alterative action upon the secretion of the diseased mucosa, and possessing an essentially lowering action on the exalted sensibility of the parts. Kisch employed a solution of one part of iodoform to ten of glycerine, with six drops of oil of peppermint well shaken up. A plug of

cotton-wool is steeped in this solution and then applied to the vaginal portion. Some of the solution also was rubbed into the lower part of the abdomen. He affirms that it was especially useful in old cases of chronic metritis. In these, diminution of the hyperplastic swelling, healing of granulations, and arrest of the discharges and neuralgic troubles, accompanied its use. Further, in a few days unmistakable success followed its employment in chronic endometritis, and in papillary and follicular ulcers of the os. He also found it useful in chronic inflammatory affections of the pelvic peritoneum and pelvic connective tissue. In a later paper Kurtz has recorded his experience with it in the treatment of one hundred cases of chronic metritis, cervical ulceration, perimetritis, and parametritis; and claims for it valuable qualities as a sedative to pain and as a prompt agent in favouring the cure of chronic metritis, cervical ulceration, and stimulating the resorption of perimetric exudations. The author then proceeds to give the results of his own observations upon iodoform, which are by no means particularly favourable to the drug. The most satisfactory results were afforded by the application of iodoform in neuralgias at the climacteric period. The pains were distinctly lessened by external application only. In two cases they were completely cured, but it was only used in seven in all of such cases. It was also used in three cases of eczema vulvæ. Martin found it beneficial in cases of carcinoma of the cervix, especially as favouring granulation after operation, and preventing pain. He also found some advantage in cases of adhesive chronic kolpitis, and in kolpitis and endometritis of the neck during pregnancy. In eighteen cases of chronic endometritis there was no observable advantage from the use of the drug. In thirty-nine cases of chronic metritis, with unilateral parametritis or with perimetritis, real benefit followed the use of iodoform for a time. The benefit, however, was only temporary. Similar results followed its application in thirty-one cases of chronic perimetritis and parametritis. The author, in conclusion, regards iodoform as an addition to our gynæcological pharmacopœia, but considers that, so far as his experience leads him, its value ought not to be unduly estimated. The preparation he employs is composed of lard and vaseline mixed, with the addition of two or three drops of peppermint-oil, or some balsam of Peru. In that way the disagreeable smell is better corrected. In the case of some patients the use of the drug had to be given up on account of its disagreeable smell.—*Edinburgh Med. Journal*, Sept. 1880.

Medicine.

Salicylate of Soda in Typhoid Fever and Erysipelas.

At the last meeting of the Société Médicale des Hopitaux (*Gaz. Hebd.*, Aug. 20), Dr. HALLOPEAU read a paper on the above subject. In typhoid fever, he observed, two indications are pressing: to attack the infectious principle, the cause of the disease, and to combat the elevated temperature; and, in general, apyretic medicinal agents are also antizymotics. Liebermeister, of Basle, has treated a great number of cases by antipyretics, and, in place of a mean mortality of 15 per cent. in mild epidemics, he has obtained one of 11 per cent. He commenced with a gramme and a half of calomel, and with the use of cold baths according to Brand's method, and then gave from two to three grammes daily of sulphate of quinine, or from six to eight of the salicylate. He found the temperature rapidly became lower, and was maintained at between 38° and 39° C. Dr. Hallopeau, following this example, gave calomel the first day also, and then administered quinine and the salicylate alternately, only having recourse to the

cold baths in great and menacing hyperpyrexia. Some observers have condemned the use of the salicylate after employing it in doses of ten, twelve, or even fifteen grammes per diem; but there is no proof that in smaller doses this salt acts at all mischievously. It should be given in doses of about two grammes a day, and never exceeding four grammes; and even then it should not be continued too long without interruption, and should be proscribed altogether when great dyspnœa is present, or a tendency to hemorrhage. It has been objected that the anti-pyretic effect of the salicylate is but slight, and even less than that of quinine; but all the thermal curves attached to Dr. Hallopeau's paper show a notable diminution of temperature after the administration of two grammes. He admits, however, that its action is fugacious, and may disappear at the end of two or three days; but then quinine may be administered, and the two agents alternated, avoiding thus an accumulation of the salicylate. In no case has he observed any ill effects produced upon the kidney; and if the salicylate be sufficiently diluted, neither ulceration of the pharynx and stomach nor diarrhœa will be caused. It has seemed in some cases to increase dyspnœa and the disposition to intestinal hemorrhage; and where there is a tendency to these conditions it should not be employed. It has been said that the diminution of the temperature has been the sole effect produced by this agent, without its exerting any influence on the course of the affection; but Dr. Hallopeau has found the disease less grave and of shorter duration than usual. In a series of twenty cases he has only met with three deaths, and in two of these not as a direct consequence of the disease; while in a second series of nine cases they all recovered.

Dr. Hallopeau has also given the salicylate internally, in doses of four grammes per diem, in erysipelas; and, basing his practice on the experiments of M. Boche-fontaine, who has shown that this salt is absorbed by the skin and passes into the urine, he has also prescribed the application of compresses dipped in a solution of the salicylate (one in twenty). In an infant, eight months old, the subject of erysipelas of the leg from a slight erasure opposite the knee, after having employed compresses wetted with elder-flower water and sulphate of quinine, which were not tolerated, he obtained by means of the salicylate a rapid amelioration of the general symptoms, the arrest of the erysipelas which had invaded two-thirds of the thigh, and the cure of the little patient. In all the fourteen cases in which this substance was employed, the temperature, at the end of twelve, thirty-six, or at most forty-eight hours, had fallen to its normal height; and among the fourteen cases only one death occurred, and that in an old man who was also the subject of purulent pleurisy. Dr. Labbé stated that he also had employed the salicylate in erysipelas, but had not derived any advantage from it, even in large doses. In his opinion, the regular course of this disease, especially on the face, which had formerly led to its erroneous assimilation to eruptive fevers, entirely depends upon anatomical reasons, such as the disposition of the lymphatic net-work, or that of some of the cutaneous muscles of the face and neck. It lasts for a week on the face, and longer when it gains the trunk; but the use of the salicylate does not modify its course. In typhoid fever, Dr. Labbé gives enemata with three or four grammes of this substance, which always produce a marked sedative effect and sleep, while disinfecting the stools. Dr. Hallopeau replied that he also employed the salicylate locally in erysipelas, and in six of his four-teen cases, he obtained evident amelioration in twenty-four hours. The cases of erysipelas of the face so treated by him did not last a week.—*Med. Times and Gazette*, Sept. 4, 1880.

Local Treatment of Smallpox Eruption with Carbolic Acid.

Dr. SCHWIMMER, in the *Deutsches Archiv*, describes his method of applying Lister's carbolic acid paste, in smallpox, with the view of preventing pitting. The paste (acidi carbolici 4.0—10.0; olei olivæ, 40.0; cretæ trit. alb., 60.0) is applied to the face upon a linen mask, with openings for nose, mouth, and eyes. Strips of linen suffice for the arms and hands. These applications are left undisturbed for twelve hours, when fresh ones can be substituted. Suppuration is greatly shortened and the intensity diminished. While in parts without treatment the stage of desiccation appeared between the thirteenth and fifteenth day, on the face it set in by the ninth to eleventh day. There was no excessive suppuration upon the face. Upon the commencement of desiccation, the mask was usually removed. Ten to fourteen days after complete desiccation, the skin of the face was free from all traces of the disease; or, at the most, spots of pigment were visible that gradually disappeared.—*London Med. Record*, Aug. 15, 1880.

—

Break-bone Fever in Charleston.

Dr. F. P. PORCHER furnishes to the *National Board of Health Bulletin*, Sept. 25, 1880, the following account of the mild epidemic of break-bone fever which prevailed during the past summer at Charleston:—

It began, it appears, in the extreme northwestern portion of the city, above Calhoun, near Line and Columbus streets, in what was formerly called the "Neck." Afterwards it seemed to progress into the lower or oldest part, and there is every indication that it is now diminishing.

The earth had been disturbed in the paving of King Street, an extensive thoroughfare running north and south the entire length of the city; and the special section of the city where the first cases were noticed was not in as good a condition as others, being near the marshes and new streets having been opened there; but, though we were at first inclined to search for the causes of disease in these conditions, the simultaneous appearance of the fever in the West, and as we learn in Savannah and Augusta, must exclude such a supposition, and refer it to general and wide-prevailing atmospheric influences.

Besides our own experience, which has been limited on account of temporary absence, we have made diligent inquiries of many persons, of physicians as well as the laity, and learn the following particulars, which we present in default of a more complete report, which will doubtless be made in future.

The symptoms vary exceedingly—some being present and some absent—as follows: The disease generally begins with a feeling of coldness, or by a chill, followed by fever—this, with a temperature ranging from 100° to 105°, lasts generally from 24 to 48 hours, occasionally extending to four or five days, and even in rare cases to seven. Relapses occasional, specially in those who have gone out too early. Headache frequent, generally frontal, from the beginning. Miliary eruptions, sometimes elevated and red, like measles, and the occasional presence of *sudamina over the face, neck, and body;* sometimes the eruptions were confined to the body, and endured for days after recovery. We have seen some examples of slight desquamation — furfuratious or branny in character. Sweating profuse in many persons, though *often absent.* Hence, some physicians are inclined to consider the disease to be *suetle miliare* of a mild form. "Break-bone" is the best name, because pain in the bones and limbs is the most constant symptom. There is often great restlessness during the fever, and in some a feeling of tightness or congestion about the throat, with bleeding in a few cases known to us. Catarrhal symptoms are rarely present, although cough has occasionally

existed. Bleeding from the nose not unusual in children, and also increase in the menstrual molimen has been observed. Pain in the back and limbs markedly present, but no decided swelling of joints, no carbuncular enlargements or boils, as in the epidemic of dengue, of 40 years since, or in that of "break-bone," which followed some years subsequently. Weakness and prostration have been very decided, but not nearly to such an extent as in previous epidemics. Some of the physicians consider that there has been a tendency to hepatic torpor or congestion, of no great severity however. We have heard of no cases of decided jaundice. Nausea and vomiting seldom occur.

The disease does not affect all the members of a household, oftentimes only one or two being seized, though we have known six to be taken in one house; in this respect differing from the dengue, as described by Prof. Dickson, and from the epidemic seen by us some thirty years since. Then 10,000 were down; no one was well enough or strong enough to help his neighbour, and one had to learn to walk over again.

It is difficult to calculate the number who have suffered, as very many have not employed a physician; from 2000 to 3000, perhaps, approximates the number.

Very little active treatment has been used; as far as we can learn, as follows: A mild laxative, saline or mercurial, hot teas, nitre, pediluvia, sinapisms, etc., and quinine during and after the attack, upon theoretical grounds, with occasionally mild stimulants. Several persons have recovered with no treatment whatever.

It has prevailed among both races, perhaps equally, and *not a single death is ascribed to this disease* as far as we can learn. The only disadvantage which accrues to those who take it is the time lost and the temporary pain and weakness from which they suffer.

Persons who were in the city and who visited the country had mild attacks. We know of four such; one of these had reached Asheville, N. C., where we saw him. Cases of the fever have occurred in Summerville, thirty miles off, on the line of the South Carolina Railroad, among persons who had never visited the city; others sickened there who had paid flying visits, remaining a part of a day only.

How different all this is from yellow fever, in which a fever of far less apparent intensity produces great changes in the blood and tissues, black vomit, albuminuria, and frequent deaths.

———

Action of Benzoic Acid in Rheumatic Polyarthritis.

Prof. SENATOR has previously called attention to the excellent results which follow the treatment of rheumatic arthritis with benzoic acid. He now brings forward a larger number of cases which confirm his original statements in regard to the action of this drug. In the earlier investigations, which were made in the beginning of the year 1877, the benzoic acid was employed not only in acute cases of rheumatic arthritis, but also in subacute cases without fever as well as in chronic ones; in the latter class, however, no results were obtained. Twenty-two cases out of a total of forty-six were treated solely by means of benzoic acid or sodium benzoate, which was given to the extent of 15 grams a day. The patients were relieved, in one case after two days of the treatment, in twenty cases after 3.7 days, and in one case, which was treated from the very commencement of the attack with small doses, after eleven days. No relapses or complications were observed in any case. In these cases it was clear that the favourable result was actually due to the benzoic acid, and this was further confirmed by the fact that in a second group of cases, four in number, the affection which had been

futilely treated by salicylic acid, was really or apparently cured. In a third group, consisting of six cases, the author found that benzoic acid afforded no relief, whilst salicylic acid was of use. From these data, which are supplemented by fourteen cases in which salicylic and benzoic acids were both employed, Professor Senator concludes that benzoic acid exerts a distinctly favourable action in rheumatic polyarthritis, though it scarcely rivals salicylic acid. Benzoic acid possesses, however, the advantage that it may be given in very large doses. The author therefore recommends that the remedy, or its sodium compounds, be used in those cases in which salicylic acid has failed, and that, if necessary, it be administered in large doses.—*Practitioner*, Sept., 1880, from Frerichs's and Leyden's *Zeitsch. f. Klin. med.* 1, p. 243.

The Pathology of Epilepsy.

The subject of epilepsy appears to be, and in reality is, one of the most difficult that can be met with in the whole range of medicine. Though brought face to face with it in his daily life, the practitioner, as a rule, gives up all attempt to grapple with the problems connected with its pathology. It seems hopeless to try to analyze the strange phenomena which make up the "fit," with which every one is familiar; and his knowledge of the subject usually ends, as it began, by a recognition of the few obvious facts patent to all who are brought into contact with cases of this disease. To pass from this elementary stage to a stage worthy of the name of scientific knowledge, a great leap is necessary—so great a leap, indeed, that until recently few attempts had been made to bridge the chasm; and such as were made, resembled leaps in the dark, guesses at the unknown, rather than the result of the true inductive processes. A few of the grosser features of the intenser kinds of fits were seized upon in the endeavour to elucidate the nature of the fits; but these, though the most obvious, were by no means the most important phenomena present, and their very intensity increased the difficulty of forming a correct notion of the pathological processes which they represented. As time went on, an observer here and there began to analyze more fully the nature of these fits, and faint gleams of light were thrown into some dark recesses of the disease. The onward progress of knowledge was, however, slow and uncertain until Hughlings-Jackson began to make his observations on the slighter forms of fits, and to notice the less obvious characters presented by them. For years he worked at the subject, until he was able to throw a flood of light on the whole question, and to open up vistas, which are now calling for exploration at the hands of those who are devoting their studies in the direction of nervous diseases.

One of the very best contributions that have hitherto been made to the study of epilepsy—we may, indeed, say the best *résumé* that has yet appeared of the views of those who form the vanguard of the neuro-pathologists—is to be found in the three Gulstonian Lectures recently delivered by Dr. Gowers before the Royal College of Physicians. Dr. Gowers has had exceptional opportunities for becoming acquainted with the disease in all its protean forms, and he was able to base his lectures upon the careful personal records of no less than fourteen hundred and fifty cases that had come under his own notice. In dealing with these cases he chiefly adopted the numerical method of analysis, but he also availed himself of the method which has been of such great service in the hands of Dr. Hughlings-Jackson—that, namely, of analyzing carefully the symptoms present in single cases, and endeavouring, by tracing them down to their source, to form some idea of their real significance. The numerical method has been already very largely employed in connection with epilepsy, and the results arrived at by its help, though they have done much to elucidate the clinical history and the prognosis of

the disease, have afforded but scanty aid in the explanation of its pathology. Although, therefore, there is much interesting information in those parts of the lectures which rest upon the percentage-frequency of certain conditions and certain symptoms in epileptic patients, it is in those portions in which Dr. Gowers deals with the significance of individual phenomena that we must seek for the more important additions to our knowledge of epilepsy. Some of those who are accustomed to employ the scalpel and the microscope only in their search after the ultimate causation of disease, may say that there is too much of the hypothetical element in the explanations of the pathology of epilepsy offered by Hughlings-Jackson, Gowers, and their school. To these it is only necessary to say that, so far as we are able to foresee, the microscope and the scalpel will afford us but little help in the investigation of epilepsy, and that the only way to arrive at an accurate knowledge of its pathology is to study its clinical features with the aid of physiology, rather than the post-mortem appearances with the aid of anatomy. This, in fact, it is which constitutes the chief difference between the so-called "functional" and the so-called "organic" diseases. In each case there is the physiological and the anatomical side of the disease ; but in the one case the physiological side is the more easy of approach, while in the other the anatomical side lies so open for investigation, that it is to this that our chief attention is directed. As was remarked by Dr. Gowers in his first lecture, the convulsive disorders stand out pre-eminently amongst those which can only be studied by reasoning processes based upon accurate clinical observation.

Until quite recently it was almost universally held, in accordance with the teaching of Schroeder van der Kolk, that the seat of the primary lesion in epilepsy was to be found in a vaso-motor centre in the medulla oblongata, and that the fit was due to anæmia of the brain, resulting from the spasm in its vessels caused by some sudden morbid action in this centre. This is, indeed, the view still held by a very considerable number of authorities on the subject; and it is encouraged by the fact that there is a centre in the medulla, which, when experimentally irritated in animals, gives rise to universal convulsion. Universal convulsion is, however, very different from the multiform phenomena—mental, sensory, motor, and organic—which are met with, either separately, or grouped in an endless variety of ways, in epilepsy. The fact that nearly all the forms of action of which the brain is capable may be seen in fits, argues strongly against the hypothesis that epilepsy is due only to a lesion in an exceedingly circumscribed centre ; whilst it points as strongly to the probability that the fits are due to some primary morbid condition of brain matter itself, in which case the characters of the fits would vary according as this primary morbid state is present generally throughout the brain substance, or is more or less accurately localized in different parts of the organ. It is scarcely necessary to add that the morbid state would, according to this hypothesis, affect the gray matter rather than the white, the function of the latter substance being merely that of a conductor—all the active power of the brain being seated in the former.

The next question that arises is this : Granted that epilepsy is due to some primary morbid action of gray matter, taking place either in the whole brain or in some portion of it only, what is the nature of this morbid action ? The answer to this is fairly easy up to a certain point : The action is identical with that which takes place when the brain is performing its functions healthily ; and the morbid nature of the action consists only of this, that it takes place in an irregular and uncontrollable manner. We may indeed borrow the celebrated definition of "dirt," that it is "matter in the wrong place,"—which, when applied to epilepsy, should read, "activity of brain at a wrong time." What the nature of this activity is, we are at present unable to say ; nor is it easier to explain why it is thus set in

motion without control. The first of these problems will be answered when the physiologists have fully determined the nature of "nerve-force;" the seco d will, probably, for a long time to come, afford matter for speculation to neurologists. A considerable portion of his last lecture was devoted by Dr. Gowers to the consideration of this question, and he elaborated a highly ingenious theory to explain the occurrence of fits; but this part of the subject can scarcely be considered ripe for discussion except amongst those who are devoting especial attention to the subject, and we therefore pass it over without further comment.

Dr. Hughlings-Jackson has defined epilepsy as "an irregular discharge of nerve-force occurring in any part of the gray matter of the brain or spinal cord." Taking the term in its widest sense, an "epileptic fit" may vary in intensity, from an involuntary twitching in one finger, or a sudden attack of tingling in one foot, up to those severe forms of the disease in which there is profound loss of consciousness and convulsion of every muscle of the body. This is the important fact to bear in mind in thinking over the pathology of the disease; and it will greatly facilitate the comprehension of this difficult subject, if it be thus, so to speak, reduced to its lowest terms. We believe that a very large number of medical men still look upon the expressions, "nervous discharge," "discharge of nerve-force," "discharging lesion," etc., as a mere jargon invented to conceal ignorance. It is possible that these terms may not be the clearest and most expressive that could be found; but if it be once thoroughly understood that they mean nothing more than the irregular action of some portion of the gray-matter of the brain, instead of being a jargon they will be found to contain the pith of the pathology of epilepsy so far as it is at present understood. In the detailed application of Hughlings-Jackson's definition to the various forms of fits, numerous and highly complex problems in physiology and psychology present themselves; but the first desideratum necessary for an intelligent study of the subject is to obtain a firm hold of the truth embodied in the definition, and to be able to apply it to the simpler phenomena of epileptic fits without difficulty. At present we fear the views held by the majority of medical men on the subject of the pathology of epilepsy are of a vague and hazy description. We know of nothing more likely to dispel this widespread darkness than a careful study of the Gulstonian Lectures of Dr. Gowers.—*Med. Times and Gaz.*, Sept. 4, 1880.

Treatment of Diphtheria.

Dr. CALLAN, in the *Proceedings of the Finland Practitioners*, quoted in the *St. Petersburg Med. Woch.* for August 7, states that he has derived so much benefit from the external and internal use of the sesquichloride of iron that he regards it as much a specific for this disease as quinine is in intermittent fever. Locally, he applies one part of the liquor ferri sesquichlor. with one or two parts of water, morning and evening, by means of a thick, short-cut charpie pencil, rotating it against the pseudo-membrane, which after some hours almost always becomes detached, so that the bleeding mucous membrane becomes cauterized. The nose is syringed with a solution of half this strength, and the throat is gargled with milk. From ten to fifteen drops of the sesquichloride are taken in six ounces of water, in teaspoonful doses, every ten or fifteen minutes in the day, and every quarter or half an hour in the night. Cold milk is the best food. The treatment is very troublesome for the attendants, but it is so successful that Dr. Callan states that, since the year 1861, of more than 150 patients he has not lost one. The treatment, however, should be begun early and strongly persevered in. Usually about the second or third day the pulse becomes slower and fuller, and the sticky sweat, which generally accompanies diphtheria,

diminishes, together with the febrile temperature. Upon an average, nine days have been required for the cure. When this is accomplished, the greatest care is still required, as sudden movement of the child may cause fainting or even death. [The employment of the perchloride of iron both locally and internally, in diphtheria, is nothing new, though Dr. Callan's energy of employment is perhaps new. Certainly his success is. We transcribe his statement because it is so positive; but it certainly seems strange that, as in Russia diphtheria is depopulating some regions, he has not taken more pains to make so certain a cure known. His own cases, he admits, were mild ones.]—*Med. Times and Gazette*, Sept. 4, 1880.

The Treatment of Pleuritic Effusions.

A physician to a foreign hospital generally has the advantage over an English hospital physician in the number of beds at his disposal. If you want to study a certain class of disease, you are more likely to have the opportunity with a hundred beds than with twenty. Thus we doubt whether a member of any English medical staff could illustrate his remarks on pleuritic effusion by the results of 123 cases treated in his own wards, as Dr. GOLTDAMMER, of the Bethany Hospital, Berlin, does in a lecture delivered before the Berlin Medical Society (*Berlin Klin. Wochenschrift*, Nos. 19, 20, 1880). Of these 123 cases, which were operated on in all 200 times, 19 were purulent effusions, 49 were primary sero-fibrinous pleurisies, and 55 were secondary effusions in patients with phthisis, pneumothorax, typhoid fever, carcinoma, and tuberculosis of the pleura, heart disease, and nephritis. Passing over the cases of empyema for the present, we will speak first of the primary serous effusions. These Dr. Goltdammer divides into abundant, where one whole side of a chest is full of fluid, and moderate and small effusions. The former he invariably taps, not waiting for the onset of dyspnœa, but endeavouring to tap early enough to prevent it. The relief given is immense, and there is often no return of the fluid, especially when the tapping is done early. This was true of eight out of twenty-two such cases treated by him, while in nine others which were tapped in the second, third, and fourth month of their existence, there was a considerable re-accumulation. It is very exceptional, however, for the fluid to attain its former level. The general rule is, that a re-ascent amounting to the breadth of one or one and a half intercostal spaces is detected a few days after the tapping. Dr. Goltdammer takes no account of the presence of fever, not having been able to convince himself that it affects the result of the tapping in the least. It should be noted that he scarcely ever *aspirates* large serous pleuritic effusions, but evacuates them with a trocar guarded by a valve of goldbeater's skin; aspiration he reserves for small collections of fluid. The almost exclusive indication for its use in the latter is protracted absorption. He waits until about eight days after all fever has disappeared, and then, if the effusion shows no diminution, aspirates. Most of the cases of this category, twenty-seven in number, were operated on during the second month; they, as well as the forty-nine cases of extensive effusion, all recovered, and in not a single instance did the serous fluid become purulent. This happy result Dr. Goltdammer ascribes, no doubt correctly, to the care he takes to disinfect his instruments, and to avoid pressing the contents of the syringe in aspiration, back into the pleural cavity. He mentions two cases of secondary effusion where rapid septicæmia followed the tapping; in one of these it was certain that to remedy a partial stoppage of the needle the handle of the syringe had been pushed in, driving part of the fluid in the latter, contaminated by the old oil, etc., of the piston, which it is impossible to disinfect perfectly, into the pleura; in the other case the infection could not be proved,

but no other rational explanation of the catastrophe could be found. Dr. Goltdammer observes that he is surprised that the conversion of serous into purulent exudations is not more often met with in practice, seeing how little care is taken by practitioners to use clean instruments. We cannot too strongly emphasize this remark. The great indication for tapping in the fifty-five cases of secondary effusion was dyspnœa, and relief was generally obtained. Some of the patients earnestly begged for the operation to be repeated, and Dr. Goltdammer did not notice that the repetition at all weakened them. The amount of albumen is very small in the comparatively trifling collections of fluid met with in secondary pleurisy. In two cases of phthisis a single aspiration caused complete disappearance of the effusion. In five cases of pneumothorax the fluid aspirated was serous, and not, as is generally the case, purulent. In two of these the lung completely expanded after the tapping. Dr. Goltdammer has also aspirated with success several cases of effusion secondary to hemorrhagic infarcts in the lungs. One point on which he lays great stress is, never to evacuate the whole of the fluid at once. In secondary effusions he does not withdraw more than from half a litre to one litre, and the onset of paroxysmal cough or tensive pains in the chest is always an indication to cease aspiration. In the 200 operations he has altogether performed he has only once had a case of collapse, and this recovered, and not a single case of sudden death. He therefore considers the dangers of tapping and aspiration much exaggerated.

The treatment of empyema is still one of the vexed questions of the day. Antiseptic surgery has done much to render success more certain; but the antiseptic dressing of an empyema and the insertion of a drainage-tube give trouble, and a simpler plan has been long a desideratum. The siphon trocar as used by Dr. Douglas Powell and others, is sufficiently simple, but is open to the objection that if the chest is washed out after drawing off the pus, the same tube being used for both operations, septic matter is liable to enter and infect the pleural cavity. Most of Dr. Goltdammer's cases were treated by incision under the spray and antiseptic dressing, resection of part of a rib being performed in several. The last case, however, to which he refers in his lecture was treated by a new method recommended by Dr. Kashimura, assistant to Professor Baelz, of Tokio, Japan (*Berl. Klin. Wochenschrift*, No. 3, 1880), and which is the simplest imaginable, consisting in puncturing and evacuating the pleural cavity, washing it out freely with an antiseptic liquid, and *then allowing the opening to close*. The instrument (figured by Dr. Kashimura) consists of a canula provided with a stopcock, which closes its outer end after the withdrawal of the trocar, and with two lateral openings to which India-rubber tubes are attached with spring clamps, so that either can be closed or opened at pleasure. Before tapping, these tubes are filled with thymol-water and clamped. When the instrument has been introduced, the stop-cock is closed, and one of the tubes, which dips into a vessel of thymol-water, is opened, and the pus allowed to escape. The first tube is then clamped, and the second, which communicates with an irrigator containing warm thymol-water, is opened, and the antiseptic allowed to enter the pleural cavity. It is then evacuated by the first tube, and the process is repeated until the wash-water returns uncoloured. The canula is then withdrawn and the opening closed. Of course the whole of the instrument is assumed to be thoroughly disinfected before use. The cases hitherto treated by this plan, though not numerous, are eminently satisfactory; all have recovered. Dr. Goltdammer tapped a woman aged forty-one, in a state of great prostration, with an empyema of a month's standing, and removed 700 to 800 cubic centimetres of pus. About two litres of thymol-water were used to wash out the cavity. She was operated on, on February 19, 1880; *eight* days afterwards all traces of the effusion had disappeared

and there was no return of it later on.   The patient, who had entered the hospital with extreme cyanosis, and with orthopnœa, ascites, extensive anasarca, and slight albuminuria, as well as an unresolved pneumonia of the right base, to which the empyema was secondary, had entirely recovered, even to the restoration of clear percussion and vesicular breathing over the whole right side, on April 10. It is needless to enlarge on such a result.   A few years ago, however, we may remark in passing, it would have been considered miraculous.   Now, thanks to the antiseptic method, whose beneficent effects are making themselves felt in every part of the field of surgery, we scarcely wonder at it.   We recommend the special mode of its application above described to the attention and imitation of our readers.—*Med. Times and Gazette*, Sept. 4, 1880.

Fœtal Endocarditis.

The recognition of fœtal endocarditis during intra-utarine life is a diagnostic achievement worthy of note.   A girl aged seventeen was admitted into Professor Peter's ward at La Pitié near the end of her pregnancy.   An active fœtus could be felt in the uterus.   The double sound of the fœtal head could be heard in the usual situation, but instead of the customary *tic-tac*, the first sound was replaced by a blowing murmur, almost immediately succeeded by a sharp sound like the normal second sound, and this was followed by a brief silence.   The series was repeated about 130 times a minute.   At first the interne, M. H. BARTH (who records the case in *La France Médicale*), thought that the murmur was that described by Naegele as due to the compression of the umbilical cord, but its precise limitation to the area in which alone the sounds of the fœtal heart were heard, and the absence of any uterine contraction which could cause the compression of the cord, convinced him that the sounds must be due to a lesion of one of the cardiac orifices.   The murmur was again heard next day, when the labour was actually commencing.   The child was born dead, having apparently died during the last period of labour.   The child was well-formed, and the organs were healthy, with the exception of the heart, which was enormously hypertrophied, and seemed alone almost to fill the thoracic cavity.   It was nearly globular in form, the right half being much larger than the left.   The valves on the left side of the heart, and those of the pulmonary artery, were healthy, but the tricuspid valve was the seat of a "plastic vegetative endocarditis," the free edge being thickened, covered with projections, and its surface being uneven.   The chordæ tendineæ were shortened and thickened, maintaining the valves in contiguity to the walls of the ventricle, so that it was impossible for them to fulfil their normal function.   The right ventricle was dilated and greatly hypertrophied.

The case has a practical lesson.   The labour offered no difficulties to which the death of the child could be ascribed, and it was doubtless due to the cardiac lesion. In such a case, in which fœtal endocarditis has been diagnosed, the acceleration of the labour by all possible means is desirable, to afford the child a better chance of life.   The mother, it may be noted, had never suffered from rheumatism, and presented, in her history, nothing to which the fœtal condition could be ascribed. Whether she had suffered from syphilis is not noted.—*Lancet*, Sept. 4, 1880.

Parasitical Hæmoptysis.

Japan presents, apparently, a fruitful field to the pathologist.   We lately chronicled the discovery of a new form of endemic fever by Professor BAELZ, of Tokio, and now, from the same observer, comes a description of a new form of hæmoptysis, of parasitical origin, the symptoms of a disease which Baelz pro-

poses to call "gregarinosis pulmonum." The disease is not only undescribed, but it is apparently unknown even to the native practitioners. Its chief symptom is hæmoptysis. Individuals, who are otherwise healthy, cough up bloody sputa, either continuously or at intervals, for many years. The hemorrhage has no apparent connection with phthisis or any other discoverable lung affection. Beyond the cough and expectoration, no morbid symptom, objective or subjective, is to be detected, even after the disease has lasted ten years. The affection appears to be a common one, for Baelz has already met with nineteen cases, twelve in the last year, and it is probable that thousands of Japanese suffer from it. All the cases hitherto seen have been in men, and for the most part between the ages of fifteen and twenty-five years. It is met with throughout the whole of Japan, but seems to be somewhat more frequent in the south. The sputa have a characteristic dirty-red aspect, and are thin. The red colour depends solely upon blood. A specific parasite is always to be found in it. This is met with in two forms: (1) as yellowish-brown, ovoid bodies of .13 mm. long, and .07 mm. wide. They have a double contour from a translucent wall .02 mm. thick, which, in different positions, appears greenish or reddish, and at the larger end is a kind of cover, at which the cyst opens. The contents consist of delicate jelly-like material, in which are embedded three or five aggregations of smaller bodies. The latter consist (a) of spherules about twice the size of a white blood-corpuscle, colourless, with sharp outlines. Around these spherules, and more or less inclosing them, is (b) a coarsely granular material, scattered through the jelly, and in it molecular movements may often be seen. When the spherules have left the cyst, they show for a time the same movements, and then become invested with the granular substance, and become motionless. The larger ovoid bodies are clearly psorosperm cysts, and the young spherules seem to be psorosperms similar to those which Waldenburg and Eimer have found in the intestine and liver of the mouse and rabbit. Since these and other observers have ascertained that the bodies we call psorosperms are only a stage in the development of gregarinæ, Baelz proposes to call the disease gregarinosis pulmonum, and the parasite gregarina pulmonum, or, from its colour, gregarina fusca. No opportunity has apparently occurred for investigating the pathological anatomy of the disease.—*Lancet*, October 2, 1880.

Pulmonary Syphilis.

Dr. REGINALD E. THOMPSON, of London, has recently studied sixty well-marked cases of pulmonary syphilis which had occurred in his practice. In all the signs of pulmonary disease of a peculiar character were present; they were associated with symptoms of syphilitic cachexia, and were relieved by antisyphilitic remedies. The signs might be distinguished from those of other pulmonary diseases, and were sufficiently peculiar to establish the nature of the disease. Briefly, these physical signs were dulness of percussion, and a peculiar alveolar rustle (resembling the crumpling of thin paper), with bronchial respiration and bronchophony of varying degree. These signs were not to be classed under the signs of phthisis, and the pulmonary condition indicated by them was notable for an absence of signs indicating destruction of lung-tissue. There was marked dyspnœa occurring after exertion, especially in raising the body upstairs or uphill. Hæmoptysis of small amount was frequently present, and the expectoration was sometimes abundant. These characteristics of the disease were accompanied with thoracic tenderness and other evidence of syphilitic complications. The pathology of the disease was very obscure, inasmuch as the disease was very chronic, and seldom, if ever, fatal; only one necropsy having been made by the

author, and in this case death was due to other causes.   The morbid condition of
the lungs in this case was given in detail.—*British Med. Journal*, Aug. 28, 1880.

Syphilitic Disease of the Bloodvessels.

Dr. KARL HUBER, of Leipzig, relates the following case (*Virchow's Archiv*,
Band 79, Heft. 3, 1880, p. 537).   A woman, aged 22, had enjoyed good health
until fourteen years old, when she suffered from scarlatina.   In 1876, when she
was twenty, she had an attack of left-sided pleurisy.   On September 13, 1878,
the patient was admitted into the hospital at Dresden with syphilitic ulcers of the
genitals, psoriasis palmaris, mucous patches in the mouth, and other symptoms.
She left the hospital on December 13, but was again under treatment in January
for other syphilitic affections.   On both occasions the symptoms disappeared un-
der mercurial inunction.   On February 8, 1879, the patient noticed that her
urine was thick, and that her legs were swollen.   On February 11, she was ad-
mitted into the Leipzig hospital, when there was considerable general œdema,
and there were also signs of fluid in the thorax and abdomen.   The œdema be-
came slightly less under treatment, but soon returned, and remained more or less
until death.   The urine was always scanty, pale, and turbid, and contained a
considerable quantity of albumen, as well as pus-corpuscles, and sometimes casts.
Vomiting, diarrhœa, and prostration afterwards came on, and the patient even-
tually became comatose, and died on May 19th.   The post-mortem examination
revealed a general diseased condition of the bloodvessels, with wide-spread calci-
fication, which was most marked in the arteries.   The liver was lardaceous and
fatty.   The spleen, great intestine, mesenteric glands, and right kidney were
lardaceous.   There were pyelo-nephritis of the left kidney, and inflammation of
the ureter; cystitis, ascites, and anasarca, with fluid in the thorax and pericar-
dium; embola in the arteries of the lungs; thrombi in the inferior cava and right
femoral vein; ulcers of the great intestine and larynx; cheesy deposits, and
recent inflammatory infiltrations, with œdema of both lungs.   The changes of the
vascular system were more extensive in the arteries than in the veins, but all the
arteries of the pia mater and brain, and the coronary arteries, were healthy.   The
other arteries, beginning at the aorta, and extending to the small arteries of the
hands and feet, were more or less altered by whitish or yellow patches of thick-
ening, and by calcification, some of the arteries of the extremities being converted
into chalky tubes.   The lumen of the arteries, in many places, was completely
blocked, this blocking being due, in some instances, to the morbid condition of
the vessel, in others to thrombosis as well.   In the veins there were patches of
thickening in the larger branches of the upper and lower extremities, but more
in the latter than in the former.   The portal veins, and several branches of the
pulmonary artery, were also similarly affected.   There was calcification, to a
limited extent, in the middle-sized veins, but more extensive in the small veins
of the extremities, especially of the lower extremities.   Some of the smaller
branches of the pulmonary arteries were calcified to a slight extent.   In some
remarks on the case, the author states that the extensive disease of the bloodves-
sels could not have been caused by age, nor were there any grounds for suspect-
ing the influence of chronic alcoholism.   In the absence of other causes to account
for it, he considers the vascular change must be looked upon as due to syphilis,
although differing widely from the changes hitherto regarded as syphilitic.   Dr.
Huber, however, admits the difficulty of accounting for the escape of the cerebral
vessels, supposing his view to be the correct one.—*London Med. Record*, August
15, 1880.

Obstinate Epistaxis dependent on Cirrhosis of the Liver.

M. GARNIER relates a case which he observed in Prof. Verneuil's service. A robust man was admitted on account of an epistaxis which had continued for two days, having been arrested from time to time by means of the plug. Prof. Verneuil plugged the nostrils before and behind, and, supposing that it might be a case of intermittent epistaxis, prescribed quinine. The hemorrhage persisted, and ergotine given internally and injected into the ala nasi proved of no use. Digitalis arrested the bleeding for two days, when a minute examination of the man having revealed the existence of cirrhosis of the liver, a large blister was applied over the hepatic region, and the epistaxis was definitely arrested.— *Med. Times and Gazette*, Sept. 4, 1880.

—

On the Cause and Treatment of the Bad Odour sometimes associated with Excessive Sweating of the Feet.

Dr. GEORGE THIN has recently made a fruitful investigation of this subject, the report of which is published in the *British Medical Journal* for Sept. 18, 1880, and from which the following is abstracted:—

The patient who has afforded me the opportunity of investigating the cause of the smell is a young woman, aged 22, who has suffered from evil-smelling feet, with soreness of the heels, for several years. Her hands are usually moist, or even wet, but are always odourless. The smell from the feet is not constant, disappearing in dry bracing weather, and reappearing when the weather is moist and depressing.

The first experiment I made was to subject the soles of the stockings and boots to the action of an antiseptic solution. The success was complete, the odour being entirely banished. The antiseptic precautions having been soon neglected, the smell returned, and I took the opportunity of investigating its cause more minutely.

The sole of the stocking, a few hours after it was put on, was found to be quite wet; and a stocking, if worn for a whole day, was so extremely offensive that, when held close to the nostrils, its overpowering fetor was comparable to that of putrid blood. The inside of the boot was equally wet and offensive; but, at the very time that the stocking and boot smelt so strongly, the heel itself, exuding moisture profusely, had no disagreeable odour. The sole of the heel was reddened and tender, and macerated around the edge, like a washerwoman's palm.

The reaction of the moisture in the stocking and in the sole of the boot was alkaline, that of the moisture exuding from the skin of the sole of the heel faintly alkaline, whilst that of the perspiration of other parts of the body was acid.

The fluid from the sole of the heel was thus shown to be not pure sweat, the faintly alkaline reaction being doubtless due to the serous discharge accompanying the eczema set up by the local hyperidrosis.

The fluid in the sole of the stocking was found to be teeming with bacteria forms, the nature and development of which I have carefully investigated. These investigations have produced results of some scientific interest, which I have communicated to the Royal Society.[1] The rapid development of bacteria in the fluid which exudes from the soles is doubtless favoured by the alkaline reaction produced by the mixture of serous exudation with the sweat.

The treatment instituted in this case is as simple as it has been effective. The stockings are changed twice daily, and the stocking-feet are placed for some

[1] On Bacterium fœtidum: an organism associated with profuse sweating from the soles of the feet. Proceedings of the Royal Society, No. 205, 1880.)

hours in a jar containing a saturated solution of boracic acid. They are then dried, and are fit for wear again if it be desired. The boracic acid effectually destroys the smell. But to kill the bacteria in the stocking is not enough. The leather in the bottom of the boot is wet and sodden, and smells as vilely as the stocking. This difficulty is got over by the use of cork soles. I directed my patient to get half a dozen, which she finds sufficient. A pair must only be worn one day unchanged; at night, they are placed in the boracic jar, and are put aside the next day to dry. If these directions be accurately carried out, the evil smell is perfectly destroyed.

The boracic acid solution is an excellent application to the painful skin in these cases. When the tender skin of the soles is washed with it, a sensation of coolness succeeds the feeling of heat and tension which are the usual accompaniments of the eczematous condition associated with the smell, and the skin becomes harder and loses its abnormal redness.

The bacteric fluid would seem to act as a direct irritant to the skin. My patient assures me that, if she wears stockings which have been dried without being disinfected, irritation is speedily felt; and that the cork soles, if worn a second day without having been purified, act in a similar way.

Surgery.

Case of Syphilis of the Conjunctiva.

Dr. JULES GALVANI, of Athens relates (*Gazette Hebdomadaire*, May 21, 1880) the case of a man, aged 40, who complained of trouble in his left eye, which had come on gradually. On examination, the eyelid was found to be swollen, and partially closed. The ocular conjunctiva was œdematous, and the cornea, with the exception of its central part, was hidden by the chemosis. The visible portion of the cornea was quite healthy. There was no watering of the eye, nor photophobia, but slight headache, worse at night, was complained of. No improvement in the eye occurred under scarification, quinine internally, etc.; and the pain in the head increased. The author now looked for signs of syphilis, and found a well marked syphilide on the face, breast, and arms, and enlarged lymphatic glands. Under mixed treatment, the local affections rapidly disappeared, and the patient regained his usual health.—*Lond. Med. Record*, Aug. 15, 1880.

–

Therapeutics of Strabismus.

M. BOUCHERON read a paper before the Academy of Medicine in Paris (*Le Progrès Médical*, July 10, 1880) on the therapeutics of strabismus, in regard to the cure of the affection by mydriatics without operation. Basing his argument on the physiological fact that accommodation for short distances is governed by the convergence of the eyes, M. Boucheron proposes to combat the excessive convergence of hypermetropic eyes, and the consequent convergent strabismus, by temporarily suppressing accommodation through paralysis of the mechanism of accommodation with atropin. This plan of treatment was brought before the Academy of Sciences in March, 1879, and the results which have obtained from it may be thus summed up. The *sine quâ non* of success is the intermittent character of the strabismus, since this indicates that the internal recti have not yet undergone that retraction and shortening which is a consequence of their habitually vicious position. The instillation of sulphate of atropin (3 centigrams to 10 grams of distilled water) should be made on the first appearance of the squint,

before there is any alteration in the convergent muscles. Atropin should be dropped into both eyes, to such an extent as is required to paralyze the mechanism of accommodation in each. One or two drops of the solution recommended above dropped in morning and evening will be sufficient to produce the required effect. The atropin should be employed until the squint has disappeared when the child looks closely at anything. This treatment puts a hypermetropic squinting child into the same condition as one who is hypermetropic but does not squint. The length of time during which the atropin must be used, is therefore dependent upon the age of the child when the treatment was commenced, as well as upon the duration of the affection. The strabismus as a rule disappears in two or three weeks, but it exhibits a tendency to recur for several months. In the cases which have been observed the atropin causes no inconvenience, but if it is not well borne, it should be replaced by other mydriatics, as for example, duboisin. In some cases also, myotics, such as eserin, which render accommodation mechanism immovable by causing contraction of the ciliary muscle, may modify the relation which exists between accommodation and convergence to such an extent as to cause cessation of the strabismus. Mydriatics appear, however, to yield more certain results than do myotics. In nine cases of intermittent convergent strabismus occurring in children, in eight this method of treatment gave successful results.—*Practitioner*, Sept. 1880.

A New Method of Iridectomy for Secondary Cataract.

M. GAYET, of Lyons, reminded his hearers at the late meeting of the French Association for the Advancement of Science, that, after extraction of the crystalline lens by operation or lesion, the iris became inflamed, infiltrated with plastic products, and formed as it were a kind of veil, which prevented the rays of light from reaching the retina. Ordinary iridectomy was impossible when the iris was thus indurated. On the other hand, it was known that the iris was not isolated, but belonged to the ciliary system, and was continuous with the processes. At this point it was thin, and tore when touched; but when it had become inflamed, and it adhered frequently to the neighbouring parts, the iris only tore by traction; this became transmitted to the ciliary organ; and it was well known that rough treatment of this region was liable to bring on sympathetic ophthalmia or other serious accidents. These considerations had long been known; and the importance of making an artificial pupil, and the difficulties of accomplishing it, had long been recognized. Cheselden's needle-method gave too small an aperture, and there was danger of wounding the crystalline lens and bringing on a fresh cataract. Von Gräfe's process gave a large opening in the pupil; it was a good plan, but frequently brought on a small hemorrhage, which showed that the ciliary body had been detached. M. Gayet had endeavoured to avoid that inconvenience. The knife being directed obliquely backwards, the blade forwards, he punctured the cornea and the iris; then turned the handle of the knife backwards, and carried it behind the iris. When he reached the other end of the anterior chamber, he directed the handle of the knife backwards, and brought the point outwards. The tension of the iris caused the knife to cut it in proportion as it advanced; the operation was then ended, as soon as the cornea was opened at two points. M. Gayet had performed this operation four times successfully, without difficulty or consecutive accidents.—*British Med. Journal*, Sept. 18, 1880.

Removal of the Nervus Vagus with a Tumour of the Neck.

Prof. LUCKE, of Strasburg, relates (*Centralblatt für Chir.*, Sept. 4) the case of a woman, aged twenty-eight, who, having had a cancroid tumour removed

from the right submaxillary region in 1878, presented herself in February, 1880, with a relapse, a tumour having formed in the cicatrix, and a large one under the right sterno-cleido-mastoid. On removing the latter, he found it intimately connected with the muscle. The carotid artery was easily separated from it in its whole length, but the jugular vein and nervus vagus were closely united to the tumour. The vein was tied close to the clavicle and above the tumour, and this last was removed with the vein and the nervus vagus attached to it. The bleeding was inconsiderable, and the portion of the nerve measured about twelve centimetres. No remarkable effects were produced on the respiration or pulse at the time of dividing the nerve. The nerve was found to be four times its natural thickness, but no effects were produced on the respiration during the healing of the wound. The patient presented herself in the July following, and manifested only an easily excitable respiration, which in other respects was normal. The right side of the face was in a hypertrophied condition.—*Med. Times and Gaz.*, Oct. 2, 1880.

Treatment of Aortic Aneurism by Electro-Puncture.

Dr. Dujardin-Beaumetz records (*Bullet. Gén. de Thérap.*, July 15, 1880), two fresh cases of aneurism of the aorta which he has treated in this way, and in doing so presents an interesting account of his method of employing the electric current for this purpose, and a review of the results of electro-puncture in France generally. He uses only Gaiffe's battery. The needles he recommends have no head, and vary in thickness from five to seven-tenths of a millimetre. The conditions which determine the thickness of the needle to be employed are these: The length of time during which the current is to be passed, and the presence or absence of coagula in the sac. He has noticed that if a current traverses, for ten minutes, a needle less than five-tenths of a millimetre in diameter, there is a risk of breaking the instrument in extraction, and leaving its point in the aneurism. On the other hand, thin needles must be used at first, in order to avoid risk of hemorrhage, if the sac be found to be thin and pulsating strongly; subsequently, however, when repeated *séances* have led to the formation of coagula of greater or less thickness, needles of greater diameter should be introduced. The needles are of soft iron, and are covered with an insulating coating, except at their two ends. The wire connecting the needle with the battery is extremely thin, to permit the needle to oscillate slightly when in position in the sac. The needle is introduced by means of an apparatus designed for this purpose by Gaiffe; this enables the operator to regulate with precision the depth to which the needle is entered, saves much suffering on the part of the patient, and prevents the insulating coating from being rubbed off—an accident which favours caustic action and sloughing on passing the positive current. The needle should also be withdrawn by means of Gaiffe's retractor, an instrument which slowly twists it out. The author thinks the employment of these two little instruments of Gaiffe's of great importance; forceps should never be used instead, as their use involves the putting forth of more force, gives more pain, and is apt to break the needle, which is already thinned and weakened by the action of the current. The negative pole is represented by a large flat plate placed on the thigh; this plate is pierced by a number of holes, and covered with chamois leather; it is moistened when applied, to lessen the smarting which this pole always produces. The strength of the current may be accurately regulated by means of Gaiffe's galvanometer, the needle of which should point to about 54 on the scale. M. D. has been a strong advocate, ever since 1877, of the practice of having only the needles representing the positive pole in the aneurism. With regard to the num-

ber of needles to be inserted, and the duration of the current, the author at first followed Ciniselli's practice of introducing four needles, and of passing a positive current through each for ten minutes, at two applications of five minutes each. Now he never uses more than two needles, and most often only one; a longer period of action might lead to deep corrosion of the needle, and cause it to break in extraction. (It is here suggested, as matter for further investigation, whether it might not be of service to pass the current for a longer time, in order to destroy completely that portion of the needle which is left unprotected by the insulating covering. Might not the particles of iron so detached act as centres round which coagulation of the blood in the aneurismal sac would go on? And, further, not only is the oxide of iron formed under these circumstances, but very probably also the chlorides; and these have a coagulant action on the blood.) While the author thus limits the number of needles, and the duration of the current, he advises the more frequent repetition of the operation—every eight to fifteen days; nevertheless, if the intervals are unduly shortened, pain and inflammation result. No anæsthetic, local or general, is used; the ether spray has an unfavorable influence on the coagulation of blood in the sac; chloroform also in such patients, often causes grave syncope, and this occurs the more readily as those suffering from aneurism usually suffer also from aortic insufficiency. Neither ice nor collodion is applied to the puncture holes after extraction of the needles.

M. D. has followed this method of operating for three years, and neither in his own cases, nor in those of his friends, has it been attended by any accident. In one case, however, the passing of the current caused fainting; but this patient had, for years, been subject to such attacks, and they occurred on very slight provocation, such as on being informed of the nature of his disease, and again, when a cardiographic tracing was being taken. The pulse of another patient, a man of excessively nervous temperament, fell markedly when the current was started; though it was thought better to interrupt the operation then, nothing of the kind occurred at subsequent *séances*.

The electric current acts as an irritant to the sac, producing inflammation of its walls, a curative endarteritis, determining the formation of adhesive coagula; it has also a directly coagulant action on the blood. The fact that the clot so produced is an adhesive one is strongly insisted on; the author has never observed anything of the nature of embolism, though he has operated twice on aneurisms of the innominate artery; in the first instance, there was temporary improvement, and in the second, operated on in February, 1879, the improvement then effected still continues. It has, nevertheless, been observed that the clot so formed may split up, and admit of the entrance of blood between its layers, in such a way that just as a complete cure seems to be established the aneurism suddenly shows signs of further extension; this is what occurred in a case recorded by M. Bucquoy.

Positive and lasting cure of aneurism by this means, if an instance of this kind has yet been observed, must of necessity be very rare, as we are able to attack the sac only at very few points on its whole extent—namely, those which in front or behind come into direct contact with the walls of the chest.

Dr. Petit has collected, in the *Dictionnaire Encyclopédique* (Article *Galvanopuncture*) no fewer than 114 cases of thoracic aneurism treated by electro-puncture. In 68 of these decided improvement was obtained, this improvement lasting at least a year in 35 instances, at least two years in 11 cases, and in 3 cases, three four, and five years respectively. Petit's statistics also show the great advantage of operating before the aneurism forms an obvious external swelling; improvement resulted in 73 per cent. of such cases while in those cases in which there was an external tumour, improvement was noted in only 51 per cent.

M. D.'s experience, however, is all in favour of electrolysis in thoracic aneurism ; even in instances in which the progress of the disease is not checked, it brings about marked amelioration of pain and of the feeling of throbbing.

In the first of the two new cases here recorded, the patient, a man of 53, had been confined to bed for nine months, suffering intolerable pain, which was kept in check only by subcutaneous injections of morphia, and these had to be increased in number every day ; he had also had repeated arterial hæmoptyses. Here relief was so marked that after five *séances* he was able to get up and walk about with ease ; pain was lessened to such a degree that he needed only half a syringe-ful of the morphia solution per day ; the patient's general health underwent re-markable improvement ; the swelling diminished notably in volume, became harder and firmer, while the movement of expansion of which it was the seat had greatly decreased.

In the second case the patient was robbed of sleep, had incessant cough, intense dyspnœa, great pain, could not rise from bed, while the tumour was increasing daily in size. After five operations he slept comfortably, his pains disappeared, he could rise and walk without difficulty, and was about to set out for the country well satisfied with the progress he had made.

The author concludes with the statement that electro-puncture is a most ra-tional method of treatment for aneurisms of the aorta, and that if it is capable of effecting the cure of the disease only in very exceptional cases, it rarely fails to give substantial relief, even in conditions when every other mode of treatment is powerless, and that without the least danger, if the directions above laid down are scrupulously followed.— *Glasgow Medical Journal*, Sept. 1880.

—

Results of Treatment of Aneurism of the Aorta by Galvano-Puncture.

M. L. H. PETIT, at the late meeting of the French Association for the Advance-ment of Science, read a paper based upon the study of 114 successful cases of this nature. In 111 cases, continuous currents were employed ; in three cases, inter-rupted currents (Zdekauer, Piedagnel). Of the 114 cases, three were improved ; 38 patients died without any notable amelioration ; in three cases, there were no results ; in four, they were doubtful ; 39 patients survived less than a year, though much improved, and 10 from one to two years. The others survived from two to five years. In those patients who had been followed up long enough to have their deaths verified, rupture of the aneurismal sac was noted in about forty. After the disappearance of the immediate symptoms, or even immediately after the application, amelioration had shown itself in a certain number of cases by the diminution of the pains and pulsations, by increase in the consistency of the tumour, and its progressive diminution. This retrograde progress of the dis-ease continued in twenty-four cases after a single application, and lasted from two to seventeen months ; in others, three, four, and five applications had to be made ; in others, even so many as eleven or even twelve ; but that was because the improvement did not last long after each of them. The persons forming this category all died soon after the last application of galvano-puncture. Intratho-racic aneurisms had yielded thirty successful and seven unsuccessful cases. Those which had made their way outwards yielded thirty-six successful and one unsuc-cessful cases. It was, therefore, evident that, if the proportion of successes were greater when the aneurism was still contained in the thorax, good results might be hoped for in about half of the cases of aneurism of the aorta with external tumour. In 114 cases, 292 applications were made, which were thus classified as to the immediate results : improvement, 186 ; aggravation, 61 ; *status quo*, 14 ; not exactly indicated, 31. Improvement had specially been apparent in the

relief of pain, the cessation of paroxysms of angina pectoris, the return of sleep, appetite, etc. Amongst the symptoms by which the aggravation had been characterized, augmentation of the size of the tumour, inflammation in the course of the needles, circumscribed sloughing, somewhat persistent hemorrhages, etc., had been noted. These accidents were observed especially when the needles were put into communication with the negative pole; on the contrary, they were very rare when the positive pole was employed. M. Petit, therefore, concluded, with McCall Anderson, Dujardin-Beaumetz, Teissier, etc., that positive galvano-puncture was the best proceeding hitherto employed.

M. POTAIN believed that the improvements which supervened after the employment of electrolysis in the treatment of aneurism was wrongly attributed to coagulation. In support of this opinion, he quoted the following fact: A man, attacked with an aneurism of the aorta with secondary tumour, was treated by M. Dujardin-Beaumetz. After two or three meetings, the patient was so much relieved, that he was able to leave the hospital; the secondary tumour had considerably diminished. But, after some time, the improvement disappeared, and the patient came back into M. Potain's wards, where he was treated with iodide of potassium and milk-diet. The improvement was as soon marked as after the treatment by electrolysis, and the patient again went home; but, as on the first occasion, the improvement was only temporary. He came back into hospital with pneumonia, of which he died. At the necropsy, a rather thick layer of fibrine was found lining the wall of the aneurism, but no clot. M. Potain likewise believed that it was very fortunate that there should be no clots in cases where the aneurismal sac communicated largely with the aorta, and where the clots might give rise to embolism.

M. ONIMUS maintained that the action of the current was of secondary importance, and that the coagulation of the blood was not the cause of the improvement; besides coagulation, the current exercised over the tissues a vital molecular action which was the true cause of improvement, the chemical action being very feeble. When a clot was found in an aneurism, it was wrong to ascribe it invariably to electrolysis, for clots were found in cases where this plan was not employed.

M. HEUROT, from a case which came under his notice, maintained that electrolytic action produced clots. In his case, the external tumour became solid and hard, and the pains were remarkably relieved.

M. OLLIER remarked that statistics had the great disadvantage of not being complete. Successes were published, but not failures. Statistics could not, therefore, be taken as a basis to ascertain how far recovery might be anticipated. On the other hand, M. Ollier did not believe that a complete and permanent cure had been observed. Finally, large clots had been supposed to occur after galvano-puncture, but these clots melted in some way, or they might be displaced by the needles. For these reasons, M. Ollier preferred milk-diet and iodide of potassium. Cases of spontaneous cure of external aneurism had been observed, and there was nothing to prove that the same thing did not occur in the aorta.

M. LEUDET remarked that all cases of failure had not been made known; for instance, he had operated on two patients whose cases had not been published.

M. HENROT pointed out that galvano-puncture was specially a palliative means; and, from this point of view, it was very valuable. It had been specially employed in desperate cases, when rupture of the sac was feared, or existence was unbearable to the patient on account of the acute anguish of dyspnœa, etc., and had always improved the patient's condition.

M. PETIT replied that, in the majority of the cases collected by him, coagulation of blood in the aneurismal sac, and diminution of the pulsation, souffle, etc.,

had been noted. He was aware that, as a rule, statistics mostly recorded the successes, and that the failures were passed over in silence; but, his statistics being for the greater part compiled from the complete statistics of Ciniselli, Verardini, Duncan, Anderson, Althaus, and Dujardin-Beaumetz, he was scarcely open to that reproach. Complete cure had scarcely been observed in more than two or three cases, but improvement had lasted a long time in a large number of others.

M. DENUCÉ had recently treated two cases of aneurism with galvano-puncture. In the first case, there was aneurism of the aorta of two or three years' standing, with a large external secondary tumour; the skin was attenuated, and the pains very acute. A first application of Gaiffe's pile of ten or twelve elements, making use of the positive current applied with three needles during ten minutes, caused immediate cessation of the pains; the tumour became indurated, and the pulsations diminished. After some days, a tendency to dissolution of the clot, and return of the pains and pulsations, were observed. A second application with only two needles had the same result as the first. M. Denucé had made four applications, and the benefit rendered by galvano-puncture to the patient was very considerable. In the second case, an aneurism of the brachio-cephalic artery, as large as a child's fist, and prominent above the clavicle and sternum, was treated in the same way. But, after the first application, there was no induration of the tumour; on the contrary, it increased rapidly, and in five or six days, rupture of the aneurism was apprehended. M. Denucé then tied the common carotid and the subclavian arteries. The tumor then became more tense, and diminished twenty days afterwards. The wounds of the ligatures were cured, but the tumour remained *in statu quo*, and everything pointed to the probability of its speedy rupture.—*British Medical Journal*, Sept. 18, 1880.

Multiple Thrombosis and Gangrene.

MM. LABBÉ and BRUCHET relate (*Union Méd.*, Aug. 26) a case occurring in Prof. Verneuil's service which they regard as probably unique. A miserable-looking little man, aged thirty-six, with no antecedents of syphilis or alcoholism, was admitted complaining of violent pains in all his extremities. These pains especially localized themselves in the right great toe, where there was a little sphacelus, and in the two median fingers, the pulse on both sides being somewhat feeble. Examination detected no visceral alterations nor any cause for what had occurred. Gangrene invaded the foot at five or six intervals, being accompanied by the most dreadful pain. Amputation of the leg was performed by means of the thermo-cautery, with antiseptic precautions, not a drop of blood being lost. Immediate relief followed. There was no fever, the general condition was improving, and the appetite had returned. On the eighth day there was a slight hæmoptysis; and next day there were signs of internal hemorrhage with sphacelus of the flaps, and death took place. The examination of the amputated limb had exhibited thrombosis of the two tibials, and the same lesions were now found in the tibials of the sound side, and in the two ulnars, and in one of the two radials, although no symptoms had announced these lesions. Not less than a litre of blood was found in the stomach, and near the small curvature were two round ulcers, one of which had opened into an arteriole of about two millimetres in diameter. No other change was observed except slight atheroma of the aorta. The arteries affected with thrombosis presented endarteritis, which extended to the middle coat inclusively. Virchow has stated that simple ulcer of the stomach results from limited arteritis, and this case confirms his opinion.— *Med. Times and Gaz.*, Sept. 4, 1880.

Case of Laparotomy for a Singular Cause.

A man, three weeks before being brought to the Vienna General Hospital, had introduced a varnishing brush, seven inches long, into the rectum in order to relieve constipation. When the brush had entered deeply, the handle slipped from his hand, and he continued for three weeks to keep the body in the abdomen, in the hope that it would be discharged at stool. Violent pains then coming on, he was brought to the hospital, and a diffused peritonitis was found to exist. An exploration of the rectum by Simon's method was practised without the body being detected; and, as the patient was quite positive that the brush was still in the abdomen, Hofrath Prof. BILLROTH performed laparotomy. It was found that the brush had penetrated as far as the sigmoid flexure, about twenty-five centimetres distant from the anus, and there had penetrated the intestinal canal, producing a diffused peritonitis. The man died six hours after the operation.— *Allg. Wien. Med. Zeit.*, August 17. [In the same journal for August 31 is related by Dr. WALSER, of Graz, a very similar case, which, however, having been seen much earlier, had a more fortunate termination. A man, three days before his admission to the hospital, had passed the handle of a hammer, twenty-five centimetres in length and two and a half in breadth, into the rectum in order to arrest a diarrhœa, and while doing so it slipped from his hand and disappeared. The abdomen was moderately distended and only slightly sensitive; and, on making firm pressure over the umbilicus, a hard, movable body could be felt, having its end exactly in the middle of the epigastrium. It could not be followed downwards, but seemed to have entered the pelvis. The general state of the patient was satisfactory, but he resisted exploration by the rectum so much that he was put under anæsthetics. Although the body could not be felt in the rectum, by pressure and manipulation of the upper end, Dr. Walser was at last able to get hold of it with a lithotomy forceps and slowly remove it.]—*Med. Times and Gazette*, Sept. 25, 1880.

Operations for Umbilical Hernia.

In a communication to the Société de Médecine (*L' Union Méd.*, Sept. 5), M. POLAILLON related two cases of strangulated umbilical hernia occurring in women, forty-one and forty-four years of age, both of whom recovered promptly after operation. He observed that these facts, taken with others which have been published, are of interest, as showing that umbilical hernia, when small or of medium size, may be operated upon with pretty much the same chances of success as in other forms of hernia. The excessive mortality which had attended the operation, and which led many surgeons to proscribe it altogether, was observed before antiseptic treatment was introduced, and was due to suppurative peritonitis being so frequently set up. Under the antiseptic method immediate union usually takes place, and this danger is rendered very slight.—*Med. Times and Gazette*, Sept. 18, 1880.

On the Progress in the Treatment of Stricture of the Urethra.

At the late meeting of the British Medical Association Sir HENRY THOMPSON introduced in the Surgical Section a discussion on the treatment of stricture of the urethra with the following interesting and instructive remarks:—

The most important changes in relation to the treatment of stricture of the urethra, during the last thirty years, in this country may, I think, be classified under five heads.

1. A general recognition of the principle, that a delicate and gentle manipulation of any instruments in the urethra is alone trustworthy or permissible, in the

place of that which was formerly greatly prevalent—viz., that urethral obstruction might often be overcome mainly by force.

2. The substitution of very pliable and taper instruments for silver and stiff gum-elastic instruments in much of the treatment, both in ordinary and in continuous dilatation.

3. A more general acceptance of the doctrine, that—given time, patience, and gentle handling—very few strictures should be met with which cannot be fairly and successfully traversed by an instrument passed through them into the bladder. At the same time, an undoubted improvement is to be noted in the mode of operating for those exceptional cases in which the surgeon fails to accomplish that object.

4. A more general acceptance of the doctrine, that dilatation of the urethra, whether with or without incision, may be carried with advantage to a somewhat higher degree than had for some time previously been regarded as desirable.

5. The substitution of internal urethrotomy in some form for the application of caustics, and for external urethrotomy on a guide.

All these may, I think, be accepted, and will be generally accepted, as illustrations of advance in the treatment of stricture.

I propose to make a remark or two on each of the topics named, at the same time venturing to indicate anything which may appear to me to be a sign of retrograde movement at any point.

I need say little on the first subject—viz., the substitution of gentleness and more careful modes of manipulation for those which were previously in vogue. Men of the present generation, however, scarcely know how rude, and, in some hands, almost barbarous, was the method of handling formerly employed in the treatment of urethral disease. The term "forcing a stricture" was then, as it had long been, an accepted surgical term both here and abroad, and denoted simply the systematic application of violence to an organic obstruction—the result of which, in nine cases out of ten, was, and could only be, the laceration of the canal and the making of a false passage. I suppose I am right in saying that such a proceeding is no longer a surgical one; and, if ever adopted, is intended to be an exceptional occurrence, and not within the limits of the rules of our art. If there was one thing more than another in the treatment of stricture which, at an early date, appeared to me unwarrantable, not to say shocking, it was the sight of a surgeon, firmly grasping a solid instrument and pressing its points with rigid arm against an urethral obstruction until something gave way, and the point was made to advance—somewhere. From the earliest time to the present, I have invariably taught, not merely that a narrow stricture can only be traversed by gentle means, but that nothing prevents success so much as a deviation from this rule; and I believe that the constant advocacy of it has not been without its influence in suppressing the dangerous practice which formerly was but too common.

The substitution of modern flexible instruments, chiefly of French origin, for the silver catheters almost invariably used thirty years ago, when the old wax or plaster bougies had fallen, somewhat undeservedly, perhaps, into disrepute, has been an advance of enormous importance. I first learned the value of flexible instruments many years ago in Paris, and have used them ever since, and still desire to speak in high terms of their practical utility in most of the varied forms and kinds in which they are presented. To a certain, although limited, extent, some of them have aided us to achieve that very considerable advance in the treatment of stricture which was set on foot by the late Professor Syme, and consisted in the doctrine (first distinctly taught and illustrated by him), that impermeable stricture is a condition of extreme rarity. In other words, he proved

that almost any stricture, however narrow, if urine passes outwardly through it, is permeable also to instruments in the hands of a careful, patient, and practised surgeon—provided only there is no crisis of actual retention present demanding immediate relief. The gain accruing to the patient through this doctrine has been very great; since, thirty years ago, a dissection through the perineum for so-called "impermeable stricture" was a comparatively common operation in our hospitals; and one, moreover, which was frequently fatal. Very rarely, indeed, ought.such a proceeding to be heard of now, since, with time and patience, a fine instrument can almost invariably be carried safely through any stricture into the bladder.

But these instruments are invaluable also in prosecuting the ordinary treatment known as "dilatation." Notwithstanding the small value set upon this method by some surgeons, who profess to regard it as scarcely worth the name of treatment, and desire to substitute urethrotomy in almost all cases of stricture, whether recent or confirmed, I see no reason whatever for discarding it. If the cutting operation necessarily conferred a cure, in the sense of preventing return of the disease, even in a bare majority of cases, the propriety of employing dilatation might perhaps be called in question. This point will be considered hereafter; meantime, there can be no doubt that such complete relief is afforded and on terms which are easy, by the use of simple flexible bougies, or by the same supplied with lead cores, and, lastly, by well-polished tapering metal sounds, that I believe it to be in the patient's interest to employ dilatation only so long as it is quite efficient; and then, as soon as it ceases to be so, and mostly not until then, to adopt other methods of a more serious kind.

To revert for a moment to the occasional existence of an "impermeable stricture," which has just been referred to, it may be briefly said that when, as sometimes happens, the surgeon fails, after adequate trials, to pass any instrument, however small, through a narrow or tortuous stricture, the method known as "perineal section" sometimes proves a valuable resource. Like other proceedings, it has been rendered more easy and efficient, and is a far safer operation than that which was done fifty years ago. Since that time, various little improvements have been added to the details of the performance, so as to facilitate the finding of the narrowed passage.

The "calibre" or "diameter" of the urethra, or the amount of its dilatability, is a subject which has come again to the front during the last few years: this time, from attention paid to the subject in America. This is one of those points relative to which our figure of the pendulum is in some measure applicable. It has always been a subject affording matter for discussion throughout the history of urethral surgery, relative to which, had we time, I could give you some curious illustrations. The different measurements made by anatomists at different epochs —and their name is legion—are remarkable chiefly for their diversity; and the rules of practice pursued by different surgeons have similarly varied. This is a fact which need not excite surprise, considering the complex nature of the passage, the relations of which have been so largely studied. The question is one of sufficient importance to be worth considering, perhaps, more closely. A good deal of the apparent discrepancy in the measurements, in the use of terms, and consequently in the practice of different surgeons, is due, in my opinion, to a certain failure among many to recognize what are the natural physical conditions of the passage in question. We hear of its size, of its diameter, of its calibre, as if the urethra were a tube of constant capacity—as if it resembled an artery, a bronchial tube, or an intestine. But in fact, the urethra has no constant quality comparable with that which we call "size" in any sense in which that term applies to the passages just mentioned. Indeed, the urethra has no "size" or

"calibre" when it is not used as a canal; and it is only thus used during a few minutes, one might rather say seconds, during the twenty-four hours, and also when artificially opened by the passing of a foreign body into it. It is simply a long chink, the sides of which are maintained in close contact by organic muscles, and traversing a mass of complex structures, which, like itself, are susceptible of great physical changes under different circumstances. Second to its natural contractility, the most distinguishing mechanical quality of this closely shut passage is its dilatability—a still undetermined, and, I may add, an undeterminable, quality; for its dilatability naturally varies greatly in different parts of its course, in consequence of the variety in the nature of the surrounding structures; while its own delicate walls and subjacent tissues are almost indefinitely extensible under the influence of continued pressure.

During the first third of the present century, there was a strong tendency, both here and in France, to regard the urethra as a passage of greater size than the surgeons of the preceding epoch had assigned to it, and to use larger instruments in the dilatation of stricture. Boyer advocated them, and, later, Mayor of Lausanne employed them, sometimes with much force. In this country, Pearson, who had a large experience, made a point of carrying dilatation as a cure for strictures to Nos. 18 and 20, English scale, equivalent to about 28 to 32 of the French scale. One of his instruments has long been in my possession, and is here for your inspection. A good deal of mischief followed what may have been the indiscriminate use of these large bougies; hence a reaction took place, and smaller sizes were adopted, with less beneficial influence, perhaps, upon the stricture itself, but also with less evil on the constitution of the patient. Within the last few years, Dr. Otis, of New York, has revived the theory of "the large diameter of the urethra," and has advocated larger instruments; besides recognizing as examples of organic stricture very slight deviations from what he conceives to be the normal "calibre," or what I should regard as the possible extent of dilatability possessed by the passage. I have no intention of formally examining the views which he has enunciated relative to this matter, having no allotted time or space in this paper for the purpose. But I will venture to say, in connection with this subject, that we, on this side, may perhaps have erred somewhat during the period of reaction referred to, in not sufficiently availing ourselves, especially in the practice of lithotrity, of the large degree of dilatability which the urethra undoubtedly possesses; and that we owe to our American brethren an advantage which the latest assertion of that fact has pointed out to us. And I desire hereby to record my sense of the value of that lesson by assuring them how gratefully I receive and profit by it. But I cannot say thus much without also saying, in the same breath, that it is a very easy thing to damage irreparably some individuals by overdistending the urethra, and that such damage I have of late witnessed in several instances. I must oppose, also, another doctrine which is associated with the proceeding, viz., that stricture of the urethra is permanently cured by complete division of all the diseased tissues affecting the passage. I have seen too many examples of return of narrowing in cases thus operated on, to admit that at present we possess any certainty of being able so to act on a confirmed organic stricture, as to insure its non-appearance in after-life. Further, I have carefully followed many of Syme's cases of external division in his and in my own hands, where the diseased structures constituting stricture have been entirely divided, and in a way more certainly complete than any internal urethrotomy can offer; and am compelled to avow that, in very few instances indeed, has the thus divided stricture not reasserted itself after the lapse of time. Nevertheless, it is an important truth that, when any portion of the stricture escapes division, the narrowing speedily returns.

For that operation, I have myself substituted internal urethrotomy in the treatment of obstinate cases, during a period of now considerably more than twenty years, having ceased to perform Syme's operation, as a rule, in 1857. Since that date, I have performed the internal operation at University College Hospital and elsewhere some hundreds of times. My experience leads me to regard it as a far safer proceeding than Syme's in relation to life, and one which is quite as efficient in relation to the general results.

But, at the date named (1857), internal urethrotomy was rarely, if ever, employed in this country; the method best known here, viz., that advocated by Stafford, had lapsed through its inadequacy to render any important service, and dilatation and caustics constituted the treatment for the great majority of cases. Like many of my brethren, therefore, I tested other proposals which appeared soon afterwards, such as by splitting the stricture, which attained a considerable popularity for a time; overdistension, etc. Like others, too, I believe that there are good grounds for the conclusion that, for those examples of the disease which are so confirmed as to defy dilatation, those methods are inferior in permanency of effect to a well performed, that is, to a complete, division by internal urethrotomy.

Nevertheless, regarding the many methods of performing internal urethrotomy which have been proposed and practised, I doubt whether it is possible for any one to pronounce which is absolutely the best. In every one, the object is, or ought to be, the same, viz., the complete division of the morbid tissue; but varied mechanical means of accomplishing this are originated by different minds, and different modes suit the hands of different surgeons. Each one probably prefers to accomplish the object with the instrument with which he is most familiar, and that method will generally be the most efficient in his hands. At the same time, many of the modes employed to accomplish internal urethrotomy will not insure the complete division of the strictured portions of the urethra, and such methods must be regarded as defective.

The principles which govern a sound procedure are more essential points for the surgeon to discover and to teach, than a consideration of small details. These principles may be briefly stated, I think, as follows:—

1. The necessity for a physical examination before operating, to detect and estimate the narrowed portions of the urethra. This is best accomplished, in my opinion, by means of a series of metal bulbs on slender stems, taking care not to regard as diseased changes those points at which the urethra itself is naturally only slightly dilatable. These bulbous exploring sounds I have invariably used, advocating them as essential to diagnosis in my first work, twenty-six years ago; and I still prefer them to any other, as safer, less irritating, and not less efficient, than more complex instruments which have been devised.

2. The necessity for accomplishing a complete division of all the morbid tissue constituting the stricture, by an incision carried through it; no matter what part of the urethra, or how much of it, is involved in the disease. As a general rule, this is, I think, most efficiently completed by a slender blade, carried beyond the stricture, and made to cut from within outwards; this latter proviso being, however, an open question. The important point, however, is, that any alleviation of the patient's condition attained by operation will be transitory if any part of the narrowing be left undivided.

3. I regard it as essential, after such division, to place at once a full-sized catheter for some hours in the bladder, to insure a free outlet for the urine, and prevent all possibility of extravasation of urine into and through the incisions thus made.

4. The necessity for passing full-sized bougies subsequently, at occasional in-

tervals, in order to effect free distension of the walls of the urethra, which lie in almost constant apposition, and so to prevent reunion of divided surfaces by the first intention.

The foregoing may, I believe, be held to embody those general principles which most experienced surgeons at the present day agree—with a few dissentients, I am aware—ought to guide us in practice. That there are different modes of carrying them out, is, as I have before intimated, a matter no less of notoriety than of necessity, as inherent in the nature of things. Such a circumstance may be regarded as one fraught with some advantage for us here, in providing scope for discussion, and so eliciting a comparison of ideas and methods among the many experienced observers who honour the Section with their presence this day. I shall, therefore, very briefly offer my own views as to the best mode which a long familiarity with the operation in practice has led me to adopt.

In respect of the instrument to be employed, I unhesitatingly avow a preference for one which, in principle of construction, resembles a slender knife with a long handle, in order that it may act completely in obedience to the impetus given to it by the hand. Concealed within a bulb at the end of the instrument is the blade; so that, before this is unsheathed, the urethrotome itself is an efficient bulbous-ended explorer (like those already employed in the previous exploration), and is used as such to identify the stricture again at the very moment of operating. With such an instrument, the incision is directed solely by intelligence, and is limited or extended according to the sensations experienced by the operator's hand, of resistance or the reverse; just as happens in the analogous instance of division of tissues which are not visible, in the case of contracted tendon in club-foot.

To my mind, having had some little experience of the last-named proceeding many years ago, when surgeon to the Marylebone Infirmary, the two operations much resemble each other, and alike require a skilled and unrestricted hand to accomplish a satisfactory division of the constricting tissues; the right amount, neither too little nor too much.

All urethrotomes in which the blade can only move in a grooved director, and this is undoubtedly the most common mode of constructing them, produce a more or less uniform mechanical result, and are incapable of effecting any variation in depth and extent of incision, often necessary to accomplish adequate division in the varying conditions requiring operation. This is what I am compelled to regard as a serious defect, and explains my preference for the bulbous-ended instrument described. It is right to say, however, that the following objection to the latter is sometimes raised, viz., that very few strictures requiring operation are sufficiently narrow to permit the introduction through them of an urethrotome, the bulb of which is equal to No. 5 or 6 of the English scale. That may be quite true; but I have never seen a case of stricture, however obstinate or narrow, which could not be temporarily brought to the size required by tying in a slender gum-elastic catheter; and I think the advantage of operating in the manner described well worth the delay of a day or two devoted to such preparation of the urethra. Still, I am quite ready to concede that an instrument which cuts by means of a blade advancing from without inwards, on a guide previously passed, may be a safer one in some hands, especially if they be not thoroughly practised in traversing the urethra. My experience of internal urethrotomy, which has been thus conducted throughout, that is, on the same principle and with the same instruments, has been from the first exceedingly satisfactory. The operation itself is fraught with very little risk; the durability of the relief afforded is the chief question to ascertain. The last twenty years have enabled me to watch the history and course of a good many cases; and, speaking in general

terms, I may say that the first three or four years after the proceeding, often more, are very comfortable for the patient; after which, at earlier or later dates, say from four to seven years afterwards, he often finds himself reluctantly compelled to retreat a number or two in the size of the bougie, which he has been accustomed to pass once or twice a month. Instead of 11 to 13, English scale, he must be content with 9 or 10, or less; but he has no symptoms to complain of. At an interval, varying in different cases from seven to twelve years, the condition in some cases becomes troublesome, and the patient finds No. 7, 6, or 5 perhaps, frequently necessary, and also that some of the old symptoms have returned. In such circumstances, I do not hesitate to advise another operation, and have occasionally performed it a second time. It so happens that I did this for one of my medical brethren only last week, having previously employed the same proceeding in 1867, thirteen years ago. I passed a No. 17 English, about 28 French, with ease, immediately after the incisions, and he is now doing admirably. In one case only, I have done the operation three times for the same patient. There is no reason why it should not be repeated, if necessary, just as we crush a second or a third calculus which may be formed after the first. In the case last referred to, the best result followed the third operation, and occasional dilatation has been quite sufficient to maintain a highly satisfactory state of the urethra ever since, although the date of that operation is at least eight years ago. I am very certain that the plan I have followed is one of great value for cases in which dilatation does not afford adequate relief; and I certainly think we are more prone to err in withholding the operation than by recommending it too generally. Inadequate relief to the stricture involves irretrievable mischief to the ureters and kidneys; and many a life has been sacrificed to persistence in painful and inefficient attempts to dilate, which might have been saved by free division of the stricture or strictures. The formation of a free passage for the urine is the necessary safeguard for the secreting organs, and there should be no loss of time in accomplishing it by internal urethrotomy, so soon as the stricture is no longer readily amenable to the action of dilatation. But when the operation is adopted, nothing less than a free and complete division of all the obstructing tissues should satisfy the operator. It cannot be too often repeated that on this depends the success of the operation.

The great desideratum of the present time unquestionably is the discovery of a mode of treatment which shall permanently restore to the strictured passage its original dilatability. I cannot say that a thoughtful consideration of the pathological condition which constitutes organic stricture, emboldens me to hope that such a result can be insured by the application of any principles of action at present known to us. If this be so, a large and important field for labour and for speculative inquiry is open in this direction. May it fall to the lot of some abler successor to this office of mine to-day, to record the accomplishment of this great achievement before another thirty years have expired.—*British Med. Journal,* Aug. 28, 1880.

Fat-Embolism in Fractures.

The subject of fatty embolism in cases of fracture, though it has attracted considerable attention in Europe, has not been much noticed in this country, therefore the particulars of the following case reported by Mr. F. A. SOUTHAM, Medical and Surgical Registrar, Manchester Royal Infirmary (*Lancet,* July 10, 1880), in which this condition was found to be present after death, will be read with interest.

A man, aged forty years, was admitted into the Manchester Royal Infirmary about 11 A. M. on February 27th, suffering from a severe compound comminuted

fracture of the bones of both legs about their lower third, caused by a railway wagon passing over them. Amputation of both legs below the knee was performed antiseptically immediately after admission by Mr. Heath. The patient bore the operation very well, and was kept under the influence of opium afterwards. The evening temperature registered 101.2°. He passed a good night and expressed himself as feeling very comfortable the following morning. Temperature 103°; pulse 132; his general condition appearing altogether very satisfactory considering the severe injuries he had received. About 3 P. M., however, the same afternoon, a sudden change was observed; he became very restless and excited, his countenance of a somewhat dusky hue, with increased frequency of the pulse and respiration; no rigors nor marked dyspnœa were observed; later on he became delirious and his condition was quite hopeless. At 9 P. M. the temperature was 105°, the pulse too quick and weak to be counted. There was slight discoloration of the integuments of the stumps discernible above the dressings, and a faint odour was perceptible, showing that putrefactive changes had been set up in spite of the antiseptic measures employed in the operation. At 10 P. M. death took place. (Strange to say, both the patient's arms had been amputated above the elbows about nine years previously for injuries of a similar character.) A postmortem examination was made by Dr. Bradshaw, pathologist to the hospital, but no morbid changes of any importance were perceptible to the naked eye. As from the nature of the injuries it was thought not improbable that fatty embolism of the lungs might be present, a portion of those organs was kept for microscopic examination.

Sections of the lung were afterwards made by Dr. Bradshaw, and on staining them with a solution of osmic acid, the presence of fatty matter in the capillaries and minute arteries was at once detected by him. It presented itself as minute globules and irregular masses of various sizes and shapes completely blocking up the vessels. Unfortunately none of the other organs were kept for microscopic examination.

In this case it is difficult to say whether the fatal result must be attributed to the plugging of the minute vessels of the lungs by particles of fat, or whether it was due to a condition of acute septicæmia which so often suddenly sets in about the middle or end of the second day after the receipt of a severe injury, and which usually causes death in the course of a few hours. The symptoms of this acute form of blood-poisoning are described by Billroth as " collapse with cyanosis" suddenly setting in. " The patients appear as if suddenly poisoned after having perhaps felt quite well during the first twenty-four hours after the operation." In this case death was at first attributed to this latter condition, and the rapid rise of temperature to 105°, along with the state of both stumps, would certainly be strong arguments in favor of it. On the other hand, the fatal result may have been due to the plugging of the vessels of the lungs, for the clinical symptoms of fatty embolism, as hitherto described—viz., collapse, more or less sudden, accompanied by the general signs of shock, though usually coming on shortly after the receipt of the injury, may be delayed for twenty-four hours or even two or three days, the patient in the mean time appearing comparatively well. The taking up of the fat by the open vessels from the medulla of the bone begins immediately after the receipt of the injury, and where an interval of time elapses before the symptoms of pulmonary embolism suddenly appear, may it not be explained on the supposition that the fatty matter, temporarily arrested or stranded in the vessels in the neighbourhood of the wound, is, after a time, when the patient has recovered from the shock of the injury, and when reaction has set in, suddenly carried on with the blood-stream under the influence of the renewed circulation, until it is arrested in the vessels of the lungs?

Fatty embolism of the lungs, though most commonly observed in compound, has also been found in cases of simple fracture. A very interesting case was reported by Dr. Hamilton, of Edinburgh (*Brit. Med. Journ.*, October, 1877), where this condition was found in a patient after rupture of a fatty liver, and it is not at all improbable that it is present to a greater or less degree when life is suddenly terminated by severe injuries, and especially in those cases attended by lesions of the osseous system.

In a paper published by Prof. Sanders and Dr. Hamilton, which appeared in the *Edinburgh Medical Journal* last year, particulars are given of a case of diabetic coma, in which, after death, fatty embolism of the lungs and also of the kidneys was observed. In the former organs, "not only were the small vessels plugged with the oily embola, but in the larger and middle-sized arteries the oil-globules spread themselves out on the wall of the vessels and adhered to it." A peculiar condition of the blood was observed, and this has also been found to exist in other cases of a similar nature. It presented the characteristic odour of acetone, and on standing a milk-white stratum collected on its upper surface, which on microscopic examination was found to consist of a fine chyle-like emulsion of oil, the globules being minutely divided.

Though numerous cases have been described on the Continent, these are, as far as I am aware, the only two hitherto recorded in this country in which on post-mortem examination fat-embolism of the lungs has been found to exist.

The most recent researches on the subject of fat-embolism are, I believe, those of Wiener (*Arch. fur Experim. Path.*, vol. xi.), who made a number of experiments on different animals (dogs, rabbits, frogs), injecting pure olive oil into the serous cavities, veins, and subcutaneous tissue.

In a first series of experiments, he found that when oil was injected into the pleura or peritoneal cavity, extensive fat-embolism was found in the capillaries of the lungs in the course of a few hours. When the oil was injected into the subcutaneous tissue the pulmonary embolism, which was much more limited, did not appear until the third or fourth day; this he proved was due to the intervention of the lymphatic glands, which retained and probably at the same time partly emulsified it. The conclusion he draws from these results is that the fatty matter can be taken up not only by the veins (as was formerly supposed), but also by the lymphatics, even when they are intact, and that the intervention of lymphatic glands does not, as has been suggested, altogether prevent fat-embolism in the lungs.

In a second series of experiments Wiener found that changes in the lungs, consisting of ecchymoses and pulmonary œdema, due to the presence of fat-emboli, were only present when very extensive fat-embolism existed; hence he infers that as a rule fat-embolism is perfectly harmless and does not give rise to the symptoms of dyspnœa, convulsions, shock, etc., which have been observed in man in cases of fat-embolism occurring after fractures. This view is supported by the fact that many of the animals experimented upon remained perfectly well, and yet when killed fifteen to twenty days after the injection, showed extensive fat-embolism of the lungs.

In a further series of experiments with respect to the ultimate destruction of the fatty emboli, he found that this condition was present in many organs, but especially in the brain and kidneys; few, if any, emboli were found in the liver, as in this organ the fatty matter seems to pass very readily through the walls of the capillaries, becoming deposited in the form of large fat-drops in the hepatic cells. In the kidneys the fat is found in the glomeruli, in the vasa afferentia, and in the tubuli themselves; from these facts, coupled with the appearance of large masses of fat in the urine soon after the injection, Wiener infers that the greater portion

of the fat injected is carried with the blood into the kidneys, where it is eliminated in the glomeruli, and passes away with the urine. At the same time no doubt another portion by becoming emulsified is taken up by the lymphatics. Finally, he found that in moderately strong dogs all the fat injected appeared to become eliminated in from three to four weeks.

As illustrative of the facts observed by Wiener with respect to the part played by the liver in cases of fat-embolism, I may refer to a case of diabetic coma which was a short time ago in the Manchester Infirmary, under the care of Dr. Dreschfeld, and in which, both before and after death, the blood was found to contain large quantities of fatty matter. On post-mortem examination, Dr. Dreschfeld found no evidence of fat-embolism in the lungs nor in the liver, but in the latter organ he observed extensive and well-marked fatty infiltration of the hepatic cells.

As a complication of simple fractures, fat-embolism must not be confounded with those cases of venous thrombosis starting from the neighbourhood of the injury, and where death sometimes suddenly results from detachment of a portion of the clot and its lodgment in the pulmonary artery or one of its large branches. In the *Lancet* of March 1, 1879, I published particulars of two cases of this fortunately very rare complication of simple fractures of the lower extremity, where, on postmortem examination, embolism of the pulmonary artery was found, causing sudden death.

The whole question of fatty embolism is still involved in much obscurity, and from the importance it possesses both in its clinical and its pathological bearings, it is one well worthy of further investigation.

—

Treatment of Sprains.

Mr. R. DACRE FOX, Surgeon to the Manchester Southern Hospital, in a communication to the *British Medical Journal*, Sept. 25, 1880, makes the following interesting observations on the treatment of sprains :—

The frequency with which sprains occur in general practice, and the somewhat unsatisfactory results of the treatment ordinarily adopted, induce me to bring forward a method that I have used in a great many cases with considerable success. Sprains may be broadly divided into two kinds, mild and severe; the former consisting merely of a temporary overdistension of the parts around a joint, which rest and anodyne applications usually soon cure; the latter involving, as I believe, much more serious pathological results, which the following plan is specially contrived to obviate.

The effects of a severe sprain are, that the fibrous ligaments controlling the movements of the joint and binding the tendons in their grooves become overstretched, swollen, and softened; the cellular tissue about the ligaments and in the tendon-grooves becomes œdematous; and plastic material is exuded; while, as a consequence of these changes, the tendons are displaced in their beds. If this condition be not actively treated, it may, and often does, lead to continued lameness, due, in all probability, partly to a diminution in the calibre of the tendon-groove, with impaired muscular action, and partly to the torn ligaments and bruised cellular tissue having undergone changes which render them incapable of adapting themselves to the movements of the joint, which are consequently impeded. I believe this result may be prevented by the application of firm direct equal pressure, applied manually at first, and kept up and controlled by pads placed in the line of the tendons, and kept in position by properly-shaped plasters and bandages, and sometimes by splints. This pressure helps to disperse the œdema, to replace the tendon in its normal position, to hasten the absorption of any plastic exudation, and thus to prevent diminution in the calibre of the tendon-groove. I cannot say this is a novel method of treatment; but I think it is one

not usually practised, partly because it entails the expenditure of much time and trouble, and partly, I feel sure, because there is and has been a tendency to underestimate the inconvenience and distress arising from a badly sprained joint.

The common practice, in treating a sprain, is to put on a bandage, telling the patient to take it off if the joint becomes painful, and to substitute warm-water fomentations.   When the swelling has subsided, if the injury be not so slight as to be already cured, a liniment or the application of iodine is generally ordered. Very frequently the tight bandage causes inflammation, while the rubbing and painting are practically useless.   There are numbers of cases of slight sprain, indeed, which will get well with comparatively little treatment or none at all; but in that more severe form where, after an inflammatory or at least exceedingly hyperæmic stage, swelling takes place with the results I have described, the application of these remedies does not prevent the joint from being left rigid, painful, and unfit for use for a very long period.   Now it is, as I have said, in preventing all this, that the plan of treatment by direct, equal, and continuous pressure will be found exceedingly valuable ; for, where it has been properly carried out, I have always found that the joint returns quickly to its normal condition—pain being speedily relieved, and rigidity prevented.   The treatment may be divided into two stages; the first lasting from a day to a week or longer, during which the treatment has to be directed to averting inflammation by rest, warm applications, anodyne lotions, etc. ; the second commencing when the joint has become cold, swollen, and painful on movement—in fact, when the injury has assumed a more or less chronic character.   It is during this second period that I believe the active treatment I advocate ought to be employed.   It is important not to commence this until the surface-heat is normal; for undoubtedly, when any tendency to inflammation exists in the tendon-sheath, pressure aggravates it, and I have known it to lead to untoward results.

It is of course impossible, within the limits of this paper, to describe the special adaptation of this method to each joint; but I will take as an illustration the ankle.   If a wire be passed round the joint so as to impinge on the two malleoli and the tendo Achillis, it will define three or four well-marked hollows: one on each side of the tendo Achillis behind each malleolus, one in front of the fibula, with a fourth shallower one in front of the tibia.   When the ankle is severely sprained these fossæ become obliterated, and are filled up with effusion, overstretched ligaments, and displaced tendons.

Observation has led me to believe that there are very few sprained ankles in which muscular displacement to some degree does not take place.   It most commonly occurs in front of the outer malleolus, involving the outer part of the annular ligament, the extensor longus digitorum, and the anterior fasciculus of the external lateral ligament; next, perhaps, the posterior peroneo-tarsal ligament and structures behind the external malleolus.   Cases of similar overstretching and displacement on the inner side of the ankle are happily rare ; but in gravity they bear much the same relation to the former as a Pott's dislocation does to a simple fractured fibula.   I will assume an ankle-joint has sustained a severe sprain all round, and has arrived at the chronic stage : modifications of the treatment of such a case will meet all that are likely to occur.   To carry out the first principles of treatment by direct, *equal*, and continuous pressure, it is clear the fossæ mentioned above must be filled, or rather their sites covered by pads so as to cause the retaining plasters, bandages, and splints to exercise equal pressure everywhere.   By making pressure with the thumb from below upwards in the line of the fossæ, a good deal of the œdema may be squeezed away and the displaced tendons in some degree restored.   I make, as a rule, five pads (of tow and lint or leather) : two about four inches long by one inch wide (one a little shorter

than the other, so as to be better adapted to the curve extending upwards from the dorsum of the foot to the crest of the tibia); another shorter, broader, and thinner, to place over the tibialis anticus and extensor proprius pollicis; and two, three, or four inches long, and bolster-shaped, to fill in the posterior fossæ on each side of the tendo Achillis. It is often advisable, in old-standing cases, to supplement the pads by strips of plaster to insure firmer pressure. Both pads and strips of plaster should be made exactly to fit, as, if too large, they are useless, from the pressure being too diffused; and, if too small, they exercise too little pressure. A moment's consideration will render this obvious. If too large a pad, for instance, be placed over the outer postmalleolar fossa, its edges rest on the tendo Achillis and outer malleolus like the piers of an arch, leaving the fossa itself untouched. To keep these pads in their place, I use a long extended half-moon-shaped piece of plaster (emplastrum saponis spread on leather), long enough for the ends to overlap in front when the heel is placed in the centre, and a narrow oblong piece above this, placed round the lower part of the leg, to cover the upper part of the pads. The handiest way to apply the pads is to place an India-rubber band above the ankle, to slip the pads under it, and then, planting the heel in the centre of the curved plaster, to bring the two ends across the front of the joint so as to overlap. The pads having been secured in position, the elastic ring is to be cut, and the oblong piece of plaster put on so as to encircle their upper ends; lastly, the whole ankle is to be firmly bandaged. Amongst the working classes, or in the case of an uncontrollable patient, it is advisable to apply two thin splints over the anterior pads, keeping them in position by a long strip of adhesive plaster. Where there is much superficial ecchymosis, where there are bullæ, or where there is unhealthy-looking skin, instead of using soap-plaster, the pads may be kept in position and pressure maintained by a piece of lint on which ointment has been spread. Calamine ointment made stiffly is clean, and not uncomfortably greasy. If, as occasionally happens, even this should cause irritation, warm wet lint, covered by oiled silk, may be advantageously used over the pads, and secured by a firm bandage; but neither of these applications can compare in efficiency with the soap-plaster spread on leather.

Midwifery and Gynæcology.

Sterility; Excision of Anomalous Membrane; Conception.

Dr. E. D. MAPOTHER reports (*British Med. Journal,* Sept. 4, 1880) the following interesting case: In October, 1878, a lady, aged 28, and married seven years, consulted Dr. Kidd and Dr. Mapother concerning sterility. She was a person of great beauty and large frame, and with full breasts. A symmetrical and evidently congenital membrane was found to cross the vagina at right angles about three inches beyond the myrtiform caruncles. There was a central circular aperture, about two lines in diameter, and a sound passed through it found a cavity about an inch long before the cervix. The front of the membrane being smooth and convex might be mistaken for this part, save for the very different shape of the opening. At its circumference posteriorly it was thick enough to suggest the possibility of there being a peritoneal inflexion. There was no other abnormality, and the patient and her husband had been quite unaware of any. The possible risk above named having been explained, Dr. Kidd wholly excised the membrane with the aid of the scalpel and the forceps usually employed in paring vesico-vaginal fistulæ. A perfectly normal cervix and os uteri were disclosed. A glass dilator was worn with intervals for five weeks. The lady was

now in the last month of pregnancy. Dr. Mapother regretted he had not searched for muscular tissue, which might have, sphincter-like, excluded spermatozoa. As the aperture in the membrane was above the level of the os, apposition of the meatus with the latter could not occur, and the expulsion of cervical mucus which probably preceded, and the aspiration which succeeded, the ejaculation of semen, would be interfered with. Embryology scarcely explained the existence of such a symmetrical partition in a vagina of otherwise normal form, for the hypothesis of the suppression of one Müllerian canal above, the other below, would be far fetched. While no record of this precise condition existed, cases of double uterus and vagina of the marsupial type, from want of fusion of the Müllerian canals, were pretty frequent. The very dilatable sphincter between the urogenital canal and the vestibule in the monotremes was somewhat similar.

A New Dressing for the Navel.

DORHN recommends (*Centralblatt für Gynäkologie*, No. 14, 1880) the following arrangement in order to avoid the evil effects which occasionally follow the separation of the cord when dressed in the usual fashion. The newly-born child, after having its navel-string tied and cut, is first washed in the usual manner, after which it is laid on a table, and the remains of the navel-string, as well as the parts round about the navel, washed with a 2½ p. c. solution of carbolic acid. The cord is now tied a second time with a ligature which has been duly carbolized, and the superabundant portion of navel-string cut off with its previous ligature attached to it. A layer of carbolized wool is applied over the stump of the navel-string, and over all a portion of sticking-plaster about the breadth of the hand is firmly fastened. This dressing is allowed to remain till the seventh day without being aired or renewed. On removing it then, the remains of the navel-string will be found either nearly or entirely separated. In the former case it is cut off with a scissors. The author declares that he has found this dressing satisfactory in twenty-eight cases.—*Edinburgh Med. Journal*, Sept. 1880.

Etiology and Treatment of Rupture of the Uterus.

Dr. R. FROMMEL states (*Zeitschrift f. Geb. u. Gynäk*, v. 2, 1880) that by palpation of the uterus during a pain, proceeding from above downward on its anterior aspect, he finds that, at a point more or less above the symphysis, the hard, contracted tissue of the uterus ceases to be felt, the portion below this level being soft and flaccid. To recognize this state of things, it is necessary that the voluntary action of the abdominal muscles be kept in abeyance, for which purpose the use of an anæsthetic is sometimes necessary. That the soft tissue below is really a portion of the uterus is shown by the fact that the presenting part of the fœtus can be felt to be contained in it, and also by conjoined examination after delivery; that the condition is not due to pressure against the pelvic inlet is shown by its presence in those primiparæ in whom the head is already within the pelvis before labour begins. This line of demarcation between the contraction and the flaccid portions of the uterus (which Bandl supposed to correspond to the os internum, but which seems to be situated in the proper body of the organ, and which, after Schröder, the author prefers to call the "contracting ring") is generally two or three finger-breadths above the symphysis, often midway between the latter and the umbilicus, and in some instances almost as high as the navel. Where the last-named condition obtains, the intervention of art is needed to prevent excessive distension of the lower segment and consequent rupture, as described by Bandl. The behaviour of the round ligaments is of material aid in diagnosticating this condition of distension.

One of them can usually be seen and felt to stand out more prominently than its fellow during a pain, and it indicates that the distension is greatest on that side—generally the side at which the occiput is situated; the line of demarcation will then be found to run obliquely from below on the side of the least, to a higher point on the side of the greatest, distension.

Seven cases are given in which laparotomy was performed after rupture. They all ended fatally. An eighth case is related in which the rupture took place during the operation of turning by the feet, and in which, before the operation was undertaken, the child was recognized as being almost wholly contained in the over-distended lower segment of the uterus. A drainage-tube was passed into the abdominal cavity through the rent. By virtue of the most painstaking after-treatment, the patient finally did well.

The author considers laparotomy indicated where the fœtus has been expelled into the abdominal cavity; where the secretions are already ichorous; and where there is so much hemorrhage from the rupture as to make it necessary to close it with sutures. Where, on the other hand, the child is living or but recently dead, and it seems possible to deliver *per vias naturales* without inflicting too much injury, and where but a short time has elapsed since the rupture took place, drainage should be the method of treatment. For the first two days we must depend upon the drainage-tube, but, after a wall of exudation has formed, the resulting cavity is to be treated with antiseptic injections.—*New York Med. Journal*, Oct. 1880.

Discutient Treatment of Myomata.

At the recent meeting of the French Association for the Advancement of Science, M. COURTY read a paper upon this subject. Some myomata, he said, were general, and were treated with tonics, alteratives, and iodide and bromide of potassium; while others were specially in relation with the uterus. M. Courty relied on the following methods: 1. Injections at as high a temperature as the patient could bear (about 113° Fahr.) of water mixed with carbolic acid at the rate of twenty-five *grammes* per *litre;* this was an excellent anticongestive and antihemorrhagic means; 2. Subcutaneous injections of ergotin; 3. The electrolytic action of the continuous current applied by regulated intermittences with a metronome. M. Courty was of opinion that good results were certain if this method were used in the treatment of uterine fibro-myomata.

M. VERNEUIL believed that this method was only successful in about a third of the cases treated. Excellent in cases of fibroma of the congestive type, it had no effect on old-standing fibromata. In cases where profuse hemorrhage was noted, and in which one or two painful points were found in the tumour corresponding to the ovaries, subcutaneous injections of morphia soothed the pain, and also arrested the hemorrhage.

M. Courty allowed that cure could not always be obtained, but said that his method procured, in every instance, real and considerable relief of the suffering. In answer to a question by M. Millard, M. Courty said that an exaggerated value had been attributed to the employment of saline mineral waters in the treatment of uterine fibro-myomata. Alkaline waters were often useful in certain general conditions of the patient.

M. DENUCÉ thought that, of all the methods pointed out by M. Courty, the injection of morphia seemed to him the most effective; and he related the particulars of a case of complete resolution of a fibroma obtained in three or four months by this method.—*British Med. Journal*, Sept. 18, 1880.

MEDICAL NEWS.

The Lesson of Memphis.

Great calamities like great orators use indeed the same words and inculcate the same wisdom with lesser ones, but speak with an eloquence which carries conviction to a far wider circle of auditors. Hence it is not perhaps too much to hope that the events of the past two years in Memphis will instruct thousands of towns and villages throughout our country in regard to the danger of drinking impure water, especially when contaminated by sewage, and at the same time point out remedies against the virulent and widely diffused disease germs, which cost us in the United States not far from fifty thousand cases of typhoid fever annually.

Every one doubtless remembers the terrible fatality of yellow fever in Memphis during the summer of 1878, and when last year the pestilence reappeared in its limits and was declared epidemic early in August, few thinking men or women failed to reflect that there must be some local cause to account for the unusual prevalence and virulence of the disease in the first instance, and its exceptional recurrence in the second. Thanks to the judicious and energetic labours of our National Health Board under whose auspices a thorough inspection of the " Bluff City" was performed last winter, we have now a positive knowledge of just what was this local cause, which so fearfully intensified the malady ; and happily, thanks to the same beneficent organization, the sanitary condition of Memphis has so wonderfully improved that instead of being such an object of abhorrence that its complete abandonment and destruction were to be urged as was done in 1879, the ephemeral press actually recommended it last summer as a health resort.

According to the report of the committee charged with making a sanitary survey of Memphis (Supplement No. 3 *National Board of Health Bulletin*, Washington, D. C., March 1, 1880), the population on January 1st was 30,659 persons grouped in 7384 families occupying 5584 dwellings. The death-rate for three years previous to 1878 was 35 per 1000 (that of Philadelphia being now 17.17), for the first yellow fever year 114 per 1000 and for last year 51 per 1000. Adjoining this record of frightful mortality, which even in non-epidemic years is more than double that of our city of " Healthy Homes," is found the statement that within the city limits were discovered 6000 sub-surface cess-pools in use. These cess-pits were frequently shallow holes without any lining. More than two-thirds of them were in dangerous proximity to living rooms, many being actually excavated in the cellars of occupied dwellings. Besides

these cess-pools, there was a large, probably an equal number of disused but unemptied vaults, the contents of which were but imperfectly covered by a thin layer of ashes or refuse. In close juxtaposition to these leaky privy vaults which must necessarily contaminate the soil for at least 30, 50, or perhaps 100 feet around their margins, were situated nearly three-fourths of the wells and cisterns which supplied the inhabitants of Memphis with a larger part of the water they consumed during their brief and feverish existence.

No student of sanitary science will, we presume, attempt to dispute the assertion that such an excessive death-rate, and such an extraordinary degree of water pollution, stand to each other in the relation of effect and cause, or could any doubt exist upon this point it must be dissipated by the positive and gratifying results already attained through the wise measures adopted by the city authorities at the recommendation of the National Board of Health. The precautions thus instituted comprised among others, the cleaning out, disinfecting, and filling up with fresh earth of all privy vaults, both used and abandoned, and the subsequent strict prohibition of any method of dealing with excreta which may cause the contamination of the surrounding soil and resulting pollution of the drinking water in cisterns and wells; the condemnation and destruction by fire of numerous houses, many of them shanties, in the lower districts, the materials of which were so saturated with disease poisons as to render them *foci* of contagion, dangerous to the public health; the enforcement of a system of building regulations providing for the alteration of existing dwellings and the erection of future edifices in accordance with the dictates of sanitary science in regard to ventilation, disposal of excreta, etc., and most important of all, the introduction of a system of sewerage substantially as advised by the well-known expert Col. Waring.

This plan of sewerage, the novel features of which particularly recommend it among communities where economy is an important object, excludes rain-water and subsoil water from the sewers, makes use of earthen pipes instead of brickwork, the dimensions of the conduits being so regulated as to secure a constant flow through them without their being at any time more than half full. According to it the sewers are to be flushed by the flow of a hundred and twelve gallons of water along each branch at regular intervals of every twelve or twenty-four hours, and must be ventilated by freely communicating pipes of their own diameter (4 inches) carried above the roof of each house which they serve to drain.

Such are the warnings which he who runs may read in the colossal letters relating the mournful story of fever-stricken Memphis, but the same sad lesson of preventable disease and death from polluted air or water is told in feebler accents by the sanitary history of a thousand small towns, ten thousand villages, and a hundred thousand country farm-houses throughout our country. In fact until public attention is fully awakened

to this wide-spread danger, the philanthropist cannot too often repeat the caution of a distinguished British hygienist, that every case of typhoid should be looked upon, by the owner of a house in which it occurs, as an indication that there is something wrong with the water supply, or else with the method of disposing of the sewage; even if we do not re-iterate the sterner *dictum* of another authority "that for each death from typhoid fever, *somebody* ought to be hanged."

Yellow Fever on the Lower Mississippi.—A suspicious form of fever made its appearance in the early part of August in Plaquemine Parish, La., on the Lower Mississippi, and by direction of the National Board of Health, Surgeon George M. Sternberg, U. S. A., was detailed to examine the cases and determine the nature of the disease, and as the result he positively asserted the existence of yellow fever of a mild type, with a low rate of mortality, except when the disease was aggravated by vicious local conditions. In the area where this prevailed Dr. Sternberg also found a malarial fever, attributed by the local physicians to exposure in the rice harvest, which they called rice fever.

Drs. Bemiss and Mitchell, of the National Board, endorsed Surgeon Sternberg's conclusions, to wit:—

1. That yellow fever (about 100 cases) existed between August 1 and September 10 in Plaquemine Parish, Louisiana.

2. That the outbreak had its origin in the immediate vicinity of the Mississippi River quarantine station, the first case, August 1, occurring directly opposite the point where the infected bark Excelsior was detained from July 11 to August 16.

3. That while the type of the disease was generally mild, vicious local conditions existed which aggravated it into the most fatal form, four dying in one family out of five attacked.

The National Board of Health immediately placed at the disposal of the Louisiana State Board of Health ten thousand dollars for use in the necessary measures to prevent the spread of the disease. The latter, recognizing only the existence of the so-called rice fever, declined the offer of the National Board, and claimed to have "instituted such measures as it deemed necessary."

Mr. Holmes's estimate of Antiseptic Surgery.—Mr. TIMOTHY HOLMES, Surgeon to St. George's Hospital, in his Address in Surgery, before the British Medical Association, paid a high tribute to Dr. Wm. Fergusson's efforts in behalf of Conservative Surgery—the excision of bones and joints, and made the following remark on the obligations of all surgeons to Fergusson's successor, at King's College, Mr. Lister. "It is not necessary," he said, "to believe in all Mr. Lister's theoretical views, in order to admit that no one has had more splendid success in the great object which he proposed to himself—the diminution of the mortality of surgical operations and injuries—and that no one has better deserved the abundant honours bestowed on him from every quarter, and now, I am glad to see, from this University also. When that great career has become a thing of the past, and some worthier orator shall discourse on the services which Mr. Lister has rendered to the world, he will be able to appreciate the value both of the theory and of the practice. The time has not come, I think, to pass any judgment on the former; but I regard it as my duty, as I am sure it is my very great pleasure to take every opportunity of saying that the practice which Mr. Lister has introduced has been eminently successful, and has been the chief cause of the

great advance which operative surgery has made in recent years. It is the enviable privilege of King's College Hospital to have been served by two successive Professors of Clinical Surgery who have done more to advance that highest of all the developments of our art than any other men of their generation. Let us mingle with our reverence for the memory of the dead our gratitude for the services of the living."—*British Med. Journal*, Aug. 14, 1880.

—

Medication through the Uterus.—Dr. ROBERT BARNES, in a recent clinical lecture (*Lancet*, July 24, 1880) calls attention to medication through the genital mucous membrane. He says: "Of late years a method practised by Harvey of washing out the uterine cavity when charged with noxious matter has come into vogue. The favourite agent at present in use is a solution of carbolic acid, and thus we get the twofold good of clearing the uterus of foul matter and of modifying the surface which produced it. But we may, I am persuaded, obtain a third good. We may, by throwing carbolic acid, or, better still, iodine or quinine, or sulphite of soda, into the uterus, chase the septic matters through the tissues and vessels by which it entered. We may thus, whilst cutting off further supply of poison to the system, do much to neutralize the action of that which had already entered."

—

Dangerous Toys.—A plentiful and cheap supply of toys will, it is generally considered, contribute to the happiness of children and the tranquillity of their parents. The recent action of the authorities in Paris suggests, however, that this result may not always be ensured. A toy producing the symptoms of lead-poisoning is not so conducive to the diversion of children and the peace of their parents as the Parisian itinerant vendor of these wares would have us believe. A number of boxes, loaded with toys, painted in brilliant colours, elastic balls coloured and varnished, lead soldiers in every variety of uniform, have been seized by the French police. It has been proved that the colour would easily come off, particularly if the children put the toys to their mouths, a habit which seems inherent in every child's nature. These playthings, painted with poisonous colours, had been imported from Fürth, in Bavaria, and a committee of the manufacturers of that town have recently held a meeting on this subject. A circular was at once issued to all the toy manufacturers, urging them to use non-poisonous paints, and reminding them that according to the German law they had exposed themselves to penalties—fines and imprisonment. The *Gesundheit* of Frankfort justly remarks that but for the repressive measures adopted in Paris the German authorities would still neglect to enforce the German law. This apathy, according to the German papers, is all the more reprehensible as the Fürth manufacturers send their toys all over Germany, and may therefore poison the children of the fatherland as well as the little Parisians—a consideration which, in the Teutonic mind, must greatly accentuate the gravity of the question. To us the matter is not less serious. It is well known that the majority—in fact, nearly all—of the cheap toys sold in England are imported from Germany, and we regret that it is to the Parisians rather than to the English authorities that we must attribute the honour of seizing these dangerous playthings. We trust that no time will be lost in following this excellent example, and that a more strict watch will be kept to prevent the importation from abroad of poison for the nursery.—*Lancet*, Aug. 7, 1880.

—

Prize Essay on Hydrophobia.—The prize of £100, offered by Mr. V. F. Bennett-Standford, for the best essay on Hydrophobia, its nature, preven-

tion, and treatment, has been awarded to Mons. Bourrel, of Paris. It will be remembered that, at Mr. Bennett-Standford's request, the Royal College of Physicians undertook the responsibility of awarding the prize, and that they appointed a very competent committee to examine and report on the essays that might be sent in. The College, when publishing the conditions of the competition, set out several questions as especially needing investigation: such as, namely—the history and origin of outbreaks of rabies, especially in the United Kingdom and its dependencies; the best mode of prevention of rabies; the characteristics of it during life, and the anatomical and chemical changes associated with the disease, particularly in its commencement; the origin of hydrophobia in man; the chemical and anatomical morbid changes observed in the subjects of the disease; with special reference to any such changes in the nervous system, and in the salivary glands; the diagnosis of the disease in doubtful cases; the alleged prolonged latency of the malady; and the subjects of treatment, prophylactic and curative. Nineteen essays, some of them of very considerable length and fulness of detail, were received; and the labour of examining them critically must have been anything but a light one. But the adjudicators have, within a very reasonable time, presented their report, upon which the prize has, as stated above, been awarded to Mons. Bourrel.—*Med. Times and Gazette*, Aug. 21, 1880.

———

Remedies for Tænia.—Dr. BERENGER FÉRAUD, as a result of trials on a large scale of the different remedies for tænia, comes to the conclusion that the most powerful and certain of these is pelletiérine, the active principle of pomegranate bark.

———

A Munificent Bequest.—FRANCESCO RIZZOLI, Professor of Surgery at the University of Bologna, who died recently, has bequeathed his vast wealth, estimated at nearly 6,000,000 francs, to the Municipality of Bologna, with the stipulation that it should be devoted to the completion and maintenance of the Model Orthopædic Hospital on his estate at San Michele, in Bosco, an institution on which he had, during his lifetime, expended a sum of 2,000,000 francs.—*Lancet*, Sept. 18, 1880.

———

Cremation.—A memorial in behalf of cremation was largely signed at the Cambridge meeting of the British Medical Association. Mr. Spencer Wells has it in charge.

———

Bad Food at Bellevue Hospital.—The House Staff at Bellevue Hospital complain in the *New York Tribune*, that their food is of such wretched quality, and so badly cooked that it is impossible to live on the hospital fare alone, and that as a result of the diet, about one-half of the staff are worn out and sick upon the expiration of their term of service at the hospital.

———

Hospital Sunday.—The London Hospital Sunday Fund of the present year has reached upwards of $130,000.

———

Canada Medical Association.—The thirteenth annual meeting of this association was held at Ottawa, September 1st and 2d, Dr. R. P. Howard, of Montreal, President, in the chair. The Americal Medical Association was represented by Drs. Brodie, of Michigan, and Brush and Goodwillie, of New York. The following officers were elected for the ensuing year: President, Dr. Caniff, of

Toronto. Vice-Presidents, Drs. J. A. Mullin, G. E. Fenwick, McNeil Parker, and J. Christie. General Secretary, A. H. David, M.D., of Montreal. The next meeting will be held at Halifax on the first Wednesday of August, 1881.

—

American Academy of Medicine.—The fifth annual meeting of the Academy was held at Providence, September 28th and 29th. Dr. F. D. Lente, of New York, President, in the chair. Twenty-four of the one hundred and nineteen members were present. Dr. Lente delivered the annual address upon the Higher Education of Medical Men, and its Influence upon the Profession and the Public.

The following officers were elected for the ensuing year: President, Dr. Edward T. Caswell, of Providence, R. I. Vice-Presidents, Drs. H. O. Marcy, of Cambridge; W. T. Taylor, of Philadelphia; Howard Pinkney, of New York; and Horace Lathrop, of Cooperstown. Secretary and Treasurer, Dr. R. J. Dunglison, of Philadelphia. The next meeting will be held in New York, on the third Tuesday in September, 1881.

—

The American Public Health Association will hold its eighth annual meeting in New Orleans, December 7th, 1880, under the Presidency of Dr. John S. Billings. Papers will be presented on Abattoirs, Epidemics, Life Insurance in its relation to the Public Health, The Storm-water question in City Sewerage, The Sanitary Engineering problems of the Mississippi River, The Hygiene of Emigrant Ships, The prevention of Venereal Diseases, Voluntary Sanitary Associations, etc. etc.

The special questions suggested for discussion at this meeting in addition to those connected with the papers above referred to, relate to methods of preventing the spread within a town or city—after they have once been introduced—of such contagious or spreading diseases as Diphtheria, Scarlet Fever, Yellow Fever, Measles, Smallpox, etc., and are as follows:—

1. What are the best means of securing prompt and reliable information as to the presence and location of cases of such diseases?

2. What are the best means of securing isolation of the first or of single cases of such diseases, and what are the chief difficulties in securing such isolation?

3. Under what circumstances is it proper to declare such diseases epidemic in a place?

4. Under what circumstances is it proper to recommend the closure of schools on account of the prevalence of such diseases?

5. What precautions should be taken at the termination of each case as to—

    a.—Care and disposal of the dead?

    b.—Disinfection and cleansing of the room and house?

    c.—Period of time at which it is safe to allow the convalescent to return to school or society?

—

Removal.—The *Editorial* office of the *American Journal of the Medical Sciences* and of the *Medical News and Abstract* has been removed to No. 237 South Eighteenth Street, Philadelphia.

—

To Readers and Correspondents.—*The editor will be happy to receive early intelligence of local events of general medical interest, or which it is desirable to bring to the notice of the profession. Local papers containing reports or news items should be marked.*

CONTENTS OF NUMBER 455.
NOVEMBER, 1880.

CLINICS.

CLINICAL LECTURES.

HOSPITAL NOTES.

MONTHLY ABSTRACT.

ANATOMY AND PHYSIOLOGY.

MATERIA MEDICA AND THERAPEUTICS.

MEDICINE.

SURGERY.

MIDWIFERY AND GYNÆCOLOGY.

MEDICAL NEWS.